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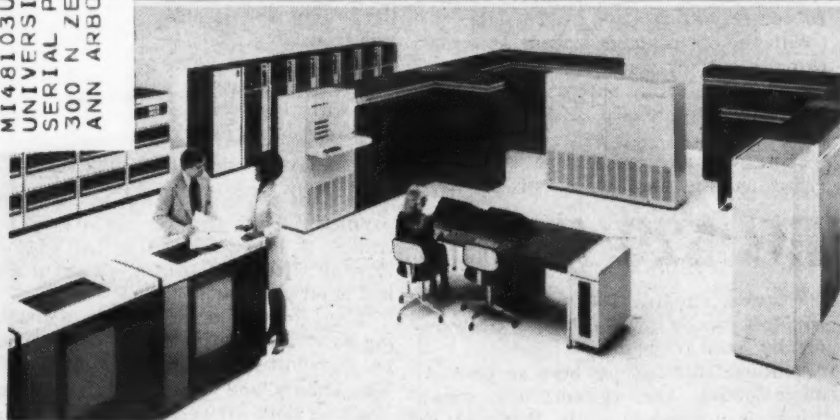
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Burroughs B6821

CBS Was Ready and Waiting... But Delegate Profiles Unneeded

By Nancy French
Of the CW Staff

NEW YORK — Had last week's Democratic National Convention been a contest like the Republicans' is going to be, CBS-TV could have projected the voting behavior of every delegate with a computer data base it compiled weeks before the convention even started.

The CBS Election and Survey Unit interviewed every convention delegate and stored those profiles in a data bank accessible via portable terminals near the convention floor, according to Warren Mitofsky, director of the unit.

CBS has been using computers for years to help bring viewers more detailed coverage of national conventions, but this is the first time its computer also has been programmed to count roll call votes, he said.

For this function, CBS' IBM 370/155 recorded and tabulated votes and then output the results to a minicomputer-driven character generator which projected the numbers right on viewers' TV screens.

To build the data base, CBS interviewers contacted every convention delegate and asked each a series of about 40 questions. News analysts wanted to know delegates' demographic characteristics — race, sex and nationality, for example — as well as their positions on the issues, Mitofsky said.

Appellate Court Today Hearing IBM Beef Over Trial Documents

By Edith Holmes
Of the CW Staff

NEW YORK — A federal appeals court here will once again enter the antitrust fray between the U.S. government and IBM when it hears arguments today on IBM's claims of protection for some 20,000 documents.

At two this afternoon, the U.S. Court of Appeals for the Second Circuit will listen to attorneys for both sides debate Judge David N. Edelstein's order that directed IBM to produce the documents for the Department of Justice.

Edelstein, the U.S. district court judge who is conducting the U.S. vs. IBM antitrust trial without a jury, rejected IBM contentions that these documents are

Since last week's chief unknown concerned the selection of a vice-presidential candidate, "we also wanted to know which vice-presidential contenders the delegates supported and which candidates they could not support," he said.

"In the case of a contested convention we would have found out how the delegates were selected, if they were uncommitted or pledged to a candidate and what they were going to do on the first ballot regardless of how they were selected," he said.

(Continued on Page 4)

Georgia Backlog Blamed on Forms

By Catherine Arnst
Of the CW Staff

ATLANTA — Claims forms that cannot be read by its optical scanner and a number of minor conversion problems have combined to backlog Georgia's Medicaid payments to providers by two to three months.

The Department of Administrative Services (DAS), which handles the DP requirements for Medicaid, is approximately \$18 million to \$20 million behind in its payments — and it will take three and one

either materials prepared specifically for this trial or privileged under the special attorney-client relationship [CW, June 7].

Charging Edelstein is propounding a new theory of law by refusing to protect these documents, IBM said his decision will mean they will be put in the public record, thus permitting their use in the antitrust cases on the West Coast brought against IBM by California Computer Products, Inc. and Memorex, among others.

"The harm to defendant both in having opposing counsel view those documents and having them admitted into evidence will be massive and irrevocable," IBM

(Continued on Page 7)

Burroughs Doubles Power Of B6700s in 800 Models

By Esther Surden
Of the CW Staff

DETROIT — The introduction of the Burroughs Corp. B6800 last week extended upwards the firm's 800 family of large-scale systems with three models said to provide twice the throughput of the B6700 systems.

The latest members of the 800 family are the B6807 and B6811 designed for decentralized DP applications and the B6821 designed to operate as a central system in a large network. They are in the range of the IBM 370/138, 148 and 158, Burroughs said.

Intended as upgrades from the B6700 systems, the B6800 systems are object code-compatible with the firm's B6700 and B7700 systems, a Burroughs spokesman said.

The systems are not compatible, however, with the less powerful members of the 800 family. The B2800, B3800 and B4800 have different CPUs than the B6800s, and programs running on these systems must be recompiled to run on a B6800, the spokesman said.

The B6807 and B6811 each include a single CPU and single I/O processor. The B6821 features dual CPUs and dual I/O processors. The B6811 and B6821 with "optimized memory logic" can access

memory twice as fast as the B6807, the spokesman claimed. The memory access logic can be upgraded in the field, he noted.

Larger Configuration Possible

The B6800 systems can be combined to form an even larger configuration with up to four CPUs, four I/O processors, 16 data communication processors and up to 15M bytes of directly addressable memory, Burroughs said.

The B6800s' increased performance is derived from a faster cycle time, a look-ahead feature that enables the system to simultaneously fetch and execute object code and larger buffers in the B6800 I/O subsystem than the B6700, the spokesman said.

The B6800 CPU has a 150-nsec cycle time. Memory is core that can be two-way interleaved and is configured on circuit boards. The memory has a read access time of 325 nsec for 6 bytes, Burroughs said.

A major feature of the multiple CPU configurations is Global memory introduced for the B6800 systems. Each CPU can have up to 3M bytes of main memory for its exclusive use. Also, 3M bytes of common Global memory can be shared

(Continued on Page 6)

Medicaid System Falls \$20 Million Behind

half to four months to catch up, according to Sam Thurmond, Georgia's Medicaid director.

DAS processes 150,000 to 180,000 Medicaid claims per week; payment is supposed to be made within a month of receiving the claim.

The state has been "plagued with conversion problems" which resulted in the backlog, Thurmond said. In December Georgia switched from a straight payment system running on an IBM 360/50 to a Medicaid Management Information System (MMIS) implemented on a Univac 1110.

The MMIS was modeled after a general system designed by the U.S. Department of Health, Education and Welfare. Georgia received federal funds for 90% of the developmental costs and 75% of the operational costs by going to an MMIS.

The IBM system was eight years old and "antiquated," Thurmond said. "At this time last year, we were just as backed up in our payments, and we were backed up with nursing home payments as well," he recalled.

Claims Forms Too Big

Georgia made its first Medicaid payments with the MMIS in March. The problems started in mid-April, Thurmond said.

One of the major causes of the current backlog is the new claims form designed for the MMIS. Too thick and too wide to be read by the IBM 1288 optical scanner the state uses, the form has to be key-punched into the CPU by an outside firm

hired to do the job.

In addition, it takes providers approximately two times longer to fill out the new form than the old one because more data is required, according to Roger Lane, executive vice-president of the Georgia Pharmaceutical Society (GPS).

"We knew the form wouldn't work," Lane said, adding GPS pointed this out to the state in four separate meetings held before the MMIS was implemented.

Besides being too wide to fit into the

(Continued on Page 2)

Center to Aid Sharing Of Federal Software

By Don Leavitt
Of the CW Staff

WASHINGTON, D.C. — The Federal Software Exchange Center (FSEC), intended to foster sharing of programs between federal agencies, is now becoming operational under the General Services Administration (GSA) Automated Data and Telecommunications Service.

Outlined in a Federal Property Management Regulation (FPMR 101-32.16) issued last February, FSEC's stated goal is to reduce "overall costs, time and use of personnel resources for software acquisition and/or development."

The FPMR calls for the pooling of information of "common use software" by all federal agencies "having [DP] facilities, resources or requirements."

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Test of New System Finds

Woman Dead Three Years Gets Medicaid

By Catherine Arnst
Of the CW Staff

COLUMBUS, Ohio — When the Ohio Welfare Department started testing a new computerized system for making Medicaid payments to nursing homes, it discovered its old system had been making payments for three years for a woman who died in 1973.

This error, amounting to \$13,489, was the largest one found in the payment system the state had been running for the past eight years on an RCA Spectra computer, according to Nick Boston, chief of Ohio's Bureau of Public Assistance.

The Ohio Welfare Department is currently implementing a new nursing home payment system that will have "far more extensive edits than the previous one," Boston said. Slated to be fully operational in October, it will be run on an IBM 370/158 or 168 at the state's central DP center.

With the old payment system, "the machine was doing very little. There was a lot of dissatisfaction with it; too much of the work was done manually," Boston said.

There was also no way to check for errors. Audits were made only of pay-

ments and not of eligibility, and the system did not interface with any other public assistance systems in the state.

There was also no inspector on the county level checking nursing homes except for an occasional check by federal or state agencies, according to Lois Floyd of the county welfare office's Fraud Inspection Unit.

The department handling nursing home payments employs six people whose function with the old system was to manually prepare the data for the computer.

Error Checking 'Fell Flat'

When the woman who was receiving the payments died, she was mistakenly recorded as having moved to the Wiggins Nursing Home in Oberlin, although she had never lived there.

"There were a couple of ways of checking an error like this on the old system, but they just fell flat down," Boston said. The county and state agencies handling the case both discovered the error at the same time, he added.

With the new system, the erroneous entry would have been blocked by the computer. The woman's name had already been taken off the public assistance system, so a cross-check could have been done, Boston said.

The new system has a data base structure and "a lot more edits built in to prevent errors," he added.

"There were relatively few errors with the old system [compared with] the amount we expected to find," Boston said. Most of the errors involved locating a case in the wrong county rather than a wrong payment.

Only the \$13,489 error "was large enough to make the papers," he said, noting the nursing home has repaid the money to the state.

Ohio pays approximately \$13 million to \$14 million monthly to 850 nursing homes caring for 30,000 recipients.

Correction

In "Former OSI Employee Convicted of Stealing Proprietary Software" [CW, June 28], the acronym OSI was used to refer to Optimum Systems, Inc. of Rockville, Md.

Computerworld has since learned that OSI was registered with the U.S. Patent Office in 1973 as the service mark of On-Line Software, Inc. of Hackensack, N.J., and regrets any problems that may have been caused.

State's Backlog Hits \$20 Million

(Continued from Page 1)

the system "unjust. The old system just couldn't handle the workload. We were rapidly sinking," he said.

Although Medicaid has been accused of implementing the system too soon, "there is no 'too soon' in Medicaid. If anything, it's eight years too late," Thurmond said. "I would have tried to implement it even sooner."

But "there is always the possibility of a system being implemented too soon," Bob Allen, DAS' director of information and computer services, said. "From a services standpoint it probably wasn't implemented too soon, but probably from a DP standpoint the system could have stood a while."

Georgia's Gov. George Busbee, who was recently elected by the National Governor's Council to head a reform committee on Medicaid, "has taken a very strong stand" on correcting the problems with the new system, Thurmond said. Busbee authorized the temporary employment of 80 to 90 people to help process the claims until the backlog is eliminated, and Thurmond expects the claims to be paid up in 60 to 90 days.

A new form has also been designed and will be put into use in September, he noted. "If it's sent out the way I've seen it, it should work," Lane said.

As for the other aspects of the MMIS, "it is working the way it's supposed to," Allen said.

"For the first time we have surveillance of providers and recipients," Thurmond said, and the system "has given me the financial data on where we're spending dollars to help me make policy decisions."

The MMIS also requires that every doctor be assigned a unique Medicaid number, although Lane said providers already use the physician's license number. Using another number would leave even more room for error and create a lot of extra work, he said.

"The problem is that the people who make the policies don't have to work with them out in the field," Lane said.

While pharmacists have never been paid on time, even with the old system, the new system is even worse, he added. "Medicaid has been a failure from the start in 1967 because of poor management, bad directors, problematic people and lack of attention."

"It's a bureaucracy, and that's the problem. A private computer firm could have done the job much better than the state is doing," he said.

Thurmond is more positive about the new system and claimed that criticism of

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Carriers Score Point in Battle To 'Humanize' Route Evaluation

By John P. Hebert
Of the CW Staff

WASHINGTON, D.C. — The National Association of Letter Carriers (Nalc) has won what it claims is an important victory in its fight to humanize or eliminate the computerized Letter Carrier Route Evaluation System being tested by the U.S. Postal Service in two U.S. cities.

The Kokomo Plan is a computerized work measurement system and method of evaluating work to get every letter carrier route as close as possible to an eight-hour day [CW, Aug. 20; Nov. 5].

An interim award in favor of Nalc was handed down by Sylvester Garrett, an impartial labor dispute arbitrator, in response to the union's challenge of 38 carriers in Portland, Ore., having to put in excessive overtime as a result of routes mapped out by the computer system.

Garrett's decision leading to the interim award is a signal Nalc will win its battle in demonstrating the impracticality of the present system, according to Nalc President James H. Rademacher.

The Kokomo Plan is based on a technique borrowed from the private industry sector called methods-time measurement (MTM) studies, which does not take individual human stamina into account to designate letter carrier routes, Rademacher said.

Garrett went to Portland to hear testimony from letter carriers from Rose City Station who said they were forced to put in nine- and 10-hour days, six days a week, to complete their weekly tasks of delivering the mail there. He also heard carriers' wives testify the overtime spent was breaking up family life, Rademacher said.

"Garrett saw people who were victims of the computerized adjustments" to their routes and made the obvious decision, he said.

Lacks Human Elements

The Kokomo Plan is not a fair assessment of routing, Rademacher said, because the MTM plan does not include ingredients of human elements — human differences of physical endurance.

The route laid out by the computer may require too much from a female carrier or a carrier near retirement age, he said.

In addition, the computer has seemingly not taken into consideration a 10% increase in letter volume in Portland since the time the plan went into effect.

According to an article in *The Wall Street Journal*, the top labor relations official of the Postal Service, James Conway, said he was not "at all happy" with the overtime ruling. "I don't think the evidence justified the arbitrator's conclusion," he added.

sion," he added.

The *Journal* also said Conway was confident Nalc's challenge to the plan will be denied in the end.

The Postal Service will file a final brief by July 23 in reaction to Garrett's decision, and a final decision should be handed down within six weeks.

If the Kokomo Plan was to be implemented in accordance with the strict formula set forth by the Postal Service, about 15,000 letter carriers would be eliminated, Rademacher said.

The Postal Service can't lay the carriers off; people would have to be integrated into different areas in the future as a result of attrition, etc., he said.

A Postal Service spokesman would not comment further on the matter because "the case is still in arbitration."

SSA Awards Controversial Bid

BALTIMORE — Despite opposition from many congressional leaders, the Social Security Administration (SSA) will get expanded computer facilities here.

A \$37.5 million construction contract was awarded to a three-firm consortium of U.S. Steel Corp.'s American Bridge Division, Owens-Corning Fiberglass Corp. and Wolff & Munier, Inc.

The contract award was delayed last month after a report by the General Accounting Office said the agency did not need new computer facilities [CW, June 21].

However, construction of the buildings and the efficiency of SSA's computer operations were actually two separate issues, a Capitol Hill spokesman said.

The contract, which was let by the General Services Administration (GSA), calls only for the "building

systems" portion of the two SSA complexes, a GSA spokesman explained.

Building systems provided for in the contract include structural framework; heating-ventilation-air conditioning distribution; electrical distribution; finished floors; ceilings; lights; and partitions.

The building systems approach taken by the winning contractor has been used in the construction of two other government buildings and has been found cost-effective, the GSA spokesman said. The approach is expected to save the government about \$6.5 million, he added.

The five-story aluminum-skinned computer center will be on a 34-acre site and will provide 697,000 square feet of space.

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Grants Data Base Bill Gets Nod From Senate

WASHINGTON, D.C. — The Senate has approved a bill that would create a data bank of all federal domestic grants.

The bill, S. 3281, introduced by senators Edward M. Kennedy (D-Mass.) and William V. Roth Jr. (R-Del.), calls for a computerized system that would also track the status of funds for each program and help local communities determine the programs for which they are eligible [CW, May 24].

The legislation has been passed on to the House Government Operations Committee's Subcommittee on Legislation and National Security, which is already considering an identical bill H.R. 13186 introduced in the House by Rep. Charles Rose (D-N.C.).

No further action on the bills is expected until after the Republican National Convention.



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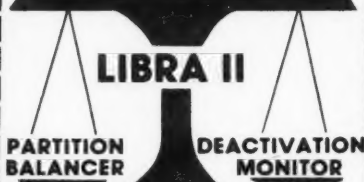
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Communications No Small Job In Preparation for Convention

By Nancy French

Of the CW Staff

NEW YORK — Last week's Democratic National Convention here was a gigantic communications job for the New York Telephone Co., with service reliability a critical factor.

In addition to installing about 5,000 telephones, 250 temporary pay telephones and 1,200 special service circuits for such things as teletypewriters and data transmission, Bell employees installed 77 video lines to carry TV signals from cameras in and around Madison Square Garden to the three national TV networks' central transmission points many blocks away where long lines sent pictures and sound to affiliates throughout the country.

To assure repairs could be made quickly if telephone equipment or lines malfunctioned, a computerized testing facility known as the Switched Access Remote Test System (Sarts) was installed, according to a spokeswoman from Western Electric, manufacturer of the system.

Sarts enabled one technician at a computer terminal test point a block from Madison Square Garden to identify the source of line difficulties in about seven minutes compared to the 40-minute test time normally needed for manual diagnosis, she said.

Nineteen Operators on Watch

Trouble calls reported to the telephone company were directed to one of 19 console operators seated at Bell Data-speed 40 CRTs equipped with Western Electric telephone consoles.

To locate a problem, operators accessed a Digital Equipment Corp. PDP-11/40 in Brooklyn which activated a series of tests.

All special services lines for the convention were wired directly into Sarts for full coverage. Sarts was also used in line maintenance — to test noise, signal and voltage levels as well as performing about 200 other commands, the spokeswoman said.

When the area of trouble was located, the console operator was notified on his CRT screen so repair crews could be dispatched.



Even before the Ringling Brothers and Barnum & Bailey Circus had moved its elephants out of center ring at Madison Square Garden, New York Telephone crews were at work there installing miles of cable and tons of switching equipment in preparation for last week's Democratic National Convention.

CBS Had Data Base Ready for Nomination Fight

(Continued from Page 1)

The delegate profiles were digitized and stored in the data base, with access programs written in APL, he said.

Information was accessed through portable typewriter terminals set up adjacent to the convention floor and in CBS offices in Penn Plaza, he said. Communications to the 370/155 were handled through dial-up phone lines.

The system provided the "capability of producing a real-time tabulation of the file and tabulation of different types of delegate characteristics," he said.

Further, "an inquiry system was written to enable correspondents to find delegates that had specific characteristics," he said. Correspondents and their producers merely asked for information they needed and computer printouts were brought right to the floor.

The information was also used to print out briefing handbooks about all the delegates, he explained.

As for the vote-tabulating system, CBS managed this responsibility for all three networks, Mitofsky said. Using a CRT terminal, CBS news personnel keyed voting results as they were registered into the 370/155 via a leased telephone line.

After tabulation by the 370, the data was output through a minicomputer to update a Vidifont character generator.

"What was distributed to the three networks was a videotape of numbers which could be superimposed over the video pictures the networks were producing themselves," Mitofsky explained.

Neither NBC nor ABC received any other access to the system, he added.

Same Way of Voting

Meanwhile, on the floor, delegates voted the same way they always have, Mitofsky said. Going to an electronic voting system "would have cost too much and besides, it would ruin all the drama," he remarked.

While the delegate survey system was provided at the Miami convention four years ago, the tabulating system was used last week for the first time, replacing a manual system of adding machines and mechanical digits.

One feature of the CBS system which Mitofsky believes is unique is that all programming needed to update the character generator was written on the 155 in APL rather than on the minicomputer actually used to run it.

This saved programmers the time and drudgery of programming the mini in machine-level coding, he said. Mitofsky himself has no background in DP, learning what he knows about computers "from growing up in the news business."

CBS did not move its 370/155 to Madison Square Garden, where the convention was held, according to Mitofsky. It was an accident of fate that the convention was held in the same location as the CBS computer, he said.

erisa

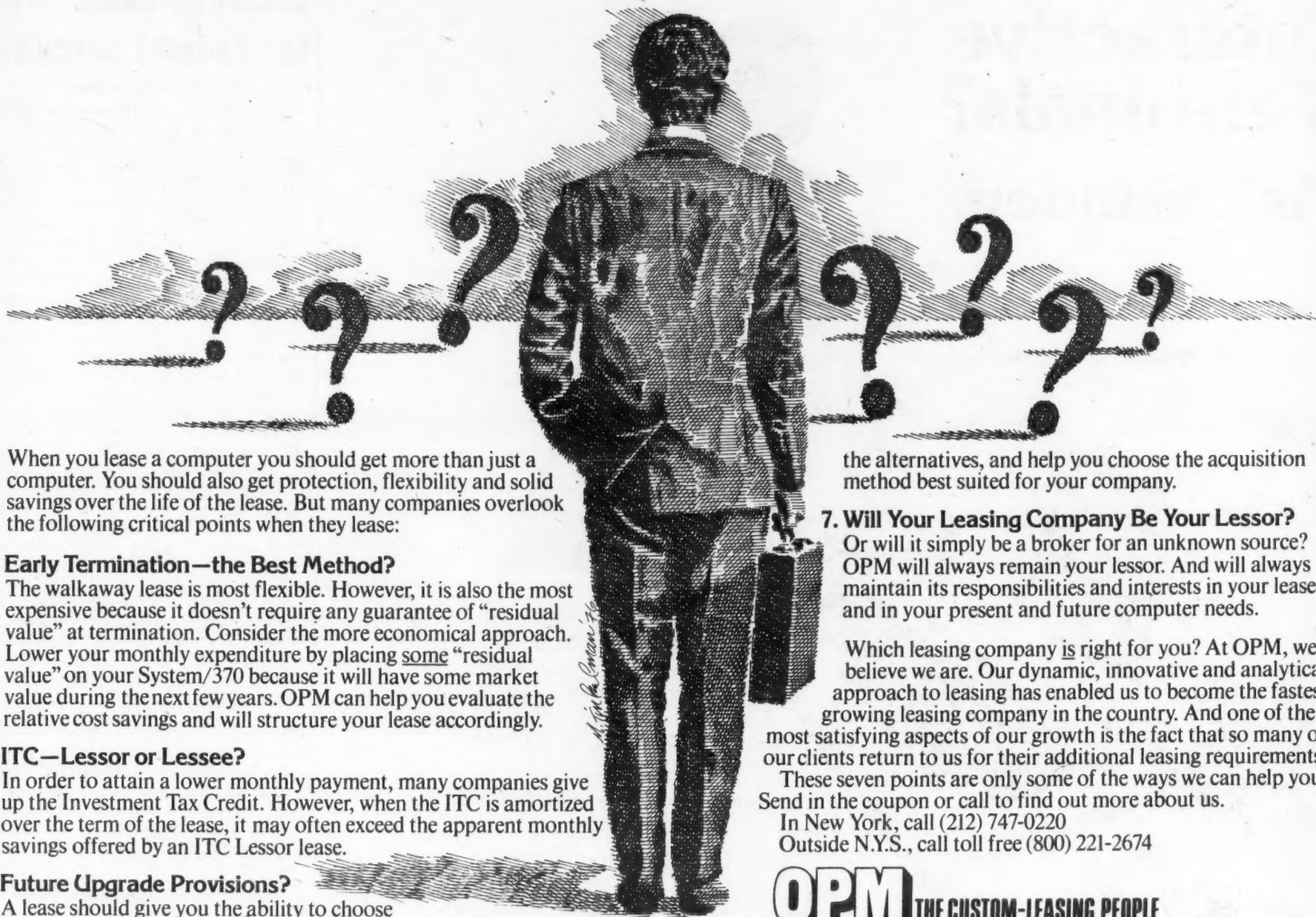
The Employee Retirement Income Security Act of 1974 effective January 1, 1976 mandates the recording of all hours worked and not worked, compensated and non-compensated, as well as all dollars affecting employee pension benefits.

Many payroll/personnel systems, including some recently installed, do not allow full compliance with ERISA.

If yours is included, you can find a quick remedy with a call to Joe Nestor at Wang Laboratories, Inc., Tewksbury, Massachusetts 01876, (617)851-4111 or in California call Carl Tarascio at (714)631-0138.

WANG

S/370 Computer Leasing: 7 Ways to Avoid Costly Mistakes



When you lease a computer you should get more than just a computer. You should also get protection, flexibility and solid savings over the life of the lease. But many companies overlook the following critical points when they lease:

1. Early Termination—the Best Method?

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2. ITC—Lessor or Lessee?

In order to attain a lower monthly payment, many companies give up the Investment Tax Credit. However, when the ITC is amortized over the term of the lease, it may often exceed the apparent monthly savings offered by an ITC Lessor lease.

3. Future Upgrade Provisions?

A lease should give you the ability to choose the simplest and most economical way of adding on memory, features or other changes. Your OPM lease will specify the future cost of such upgrades. But it will also allow you to select other methods of acquisition.

4. New Or Used Equipment?

Should you consider used equipment for all or part of your system requirements? OPM will explore with you the merits of leasing or sub-leasing used equipment.

5. Sublease and Assignment Provisions?

At some point you may want to sublease or assign your system to another user. OPM allows you to do so at any time during your lease term. And will even assist you in finding a suitable sublessee or assignee.

6. "Present Value"—The Great Equalizer.

Typically, you'll be faced with many alternative methods of acquisition. OPM will develop for you a "present value" analysis that will take into account all possible variables. This analysis will show the true cost of

the alternatives, and help you choose the acquisition method best suited for your company.

7. Will Your Leasing Company Be Your Lessor?

Or will it simply be a broker for an unknown source? OPM will always remain your lessor. And will always maintain its responsibilities and interests in your lease and in your present and future computer needs.

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CW

Burroughs Doubles Power of B6700s in 800 Releases

(Continued from Page 1)

by the configuration, a spokesman noted.

Global memory enables multiple processors to operate in either a multiprocessor mode or in a shared-resources mode.

In the multiprocessor mode, the Master Control Program (MCP) manages the system's resources as a whole; jobs have the ability to migrate from Global or one main memory to another depending on the workload, a spokesman explained.

In the shared-resources mode, the systems work independently, each processing its own job stream, but with access to a shared data base. Users who wish to dedicate one of the processors to interactive processing while running batch on the other, without splitting the data base, can now do so, Burroughs noted.

A device to allow B6700 users to add B6800 processors to their configurations and run the systems side by side as a common system was also introduced, a

spokesman noted.

A mini-disk subsystem introduced for the B80 small business system [CW, May 3] using industry-compatible flexible media can be used with the B6800 for I/O with cards, he said.

The B6807 and B6811 systems each can have one I/O processor and the B7821 can have two. Each I/O processor, operating independently on the CPU, has 20 channels, 12 with 512-byte buffers and eight with 256-byte buffers, compared with the earlier I/O processor which only had 6-byte buffers, the spokesman noted. Data is transferred at an aggregate rate of 2.2M byte/sec, Burroughs said.

A data communications subsystem introduced with the enhanced B7700 models [CW, April 19] can be used with the B6800. Each subsystem contains 384K bytes of memory and allows network continuation and recovery if the CPU is not available, the firm said.

A broadband communications control and a control to provide for high-speed block transfer of messages, also introduced with the B7700 enhancements, is available for the B6800.

B6800 Maintenance

Maintenance for the B6800 system is performed through a special microprocessor-based maintenance processor which uses regular system peripherals to run diagnostic routines and can access and display the CPU's status, Burroughs said.

Diagnostic software is driven by the MCP and runs on-line. Self-test logic allows the CPU to test itself during periods of idle operation, the firm noted.

To improve the system's accuracy, the CPU retries instructions, retains addresses and performs residue checks of all address calculations, Burroughs said.

The B6800 can accommodate Cobol, Algol, Fortran, PL/1, Basic and APL,

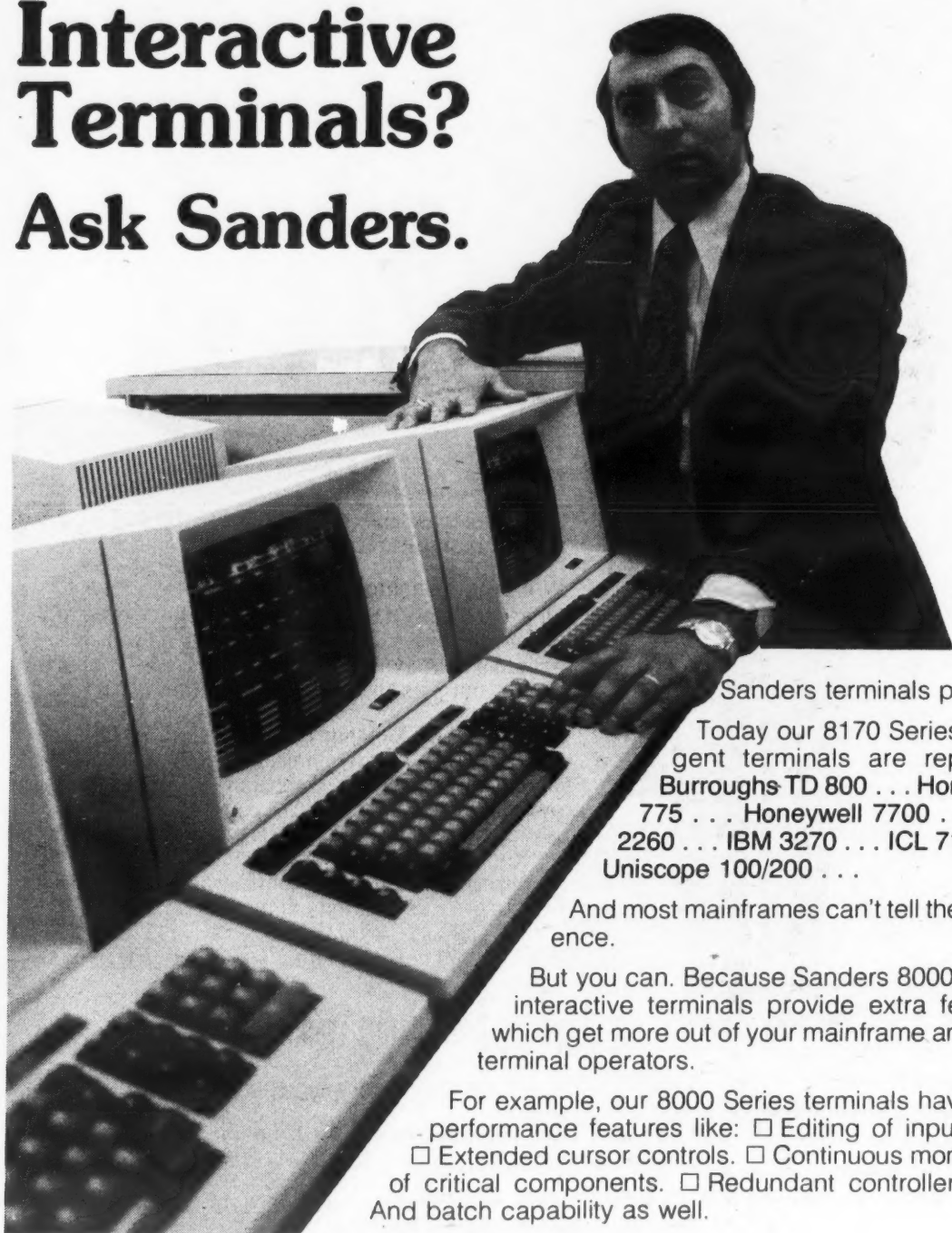
languages available on the B6700. Programs enabling conversions from other manufacturers' equipment are available.

The size of the B6800 systems has been reduced by 40% over the B6700, the spokesman noted.

Prices range from \$778,000 for a B6807 with 786K bytes of memory, card reader, card punch, printer, three magnetic tape units and 350M bytes of disk to \$4,019,800 for a B6821 dual-processor system with 3M bytes of main memory; 786K bytes of Global memory; two card readers; four printers; 16 tapes; a 2G-byte disk subsystem; two data communications processors, each with 393K bytes of local memory; and line termination equipment.

The B6811 will be available next January, the B6807 in August of 1977 and the B6821 in January of 1978, the firm said. Burroughs is located in Detroit, Mich. 48232.

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Exchange Under Way For Federal Software

(Continued from Page 1)

Once gathered, this information is to be maintained in a catalog, published and updated quarterly by the National Technical Information Service.

Agencies will be required to search through the listings of what is available from FSEC before they are allowed to acquire any software from outside sources, according to Chris Bythewood, who has organized the operation at GSA.

Software covered by the exchange is limited to programs written by agency staffs or by outside contractors working for agencies. Explicitly excluded are programs that are classified, proprietary or "developed with revolving funds" or software "to which the government does not possess the full rights of ownership," in the language of the FPMR.

Though developed with federal funding, programs in the FSEC will be considered "property" and therefore not in the public domain. Only federal agencies will have access to them, Bythewood said, noting however that the status of the software is currently under legal review.

Government "property" cannot be given away (to a nongovernment user, for example) without specific authorization, he explained. On the other hand, an agency "giving away" a copy of a software routine still has the routine for its own use "and hasn't lost any real property at all — which makes a very awkward situation, logically and legally," he said.

While one part of the FPMR defines what agencies must do to support the creation and maintenance of the FSEC library, another paragraph outlines the expected benefits from use of the exchange and another states what can happen if agencies try to bypass using the center altogether.

Agencies must, for example, submit abstracts of programs meeting the criteria in the FPMR's definition of "common use software" and later notify the center of changes in any software previously reported.

Once an abstract has been furnished, an agency must be willing to submit a copy of the program and its documentation — very specifically defined in the FPMR — within 15 days of a request from FSEC. This is a one-time submission, the regulation noted.

Another sentence calls on agencies to notify FSEC when they no longer maintain previously reported software.

Any agency seeking software from outside sources must certify in writing it has screened FSEC unsuccessfully on a specific date; without such a certifying statement, the regulation warned, the GSA will not issue a delegation of authority to make the requested purchase.

Court Today Hearing IBM Bid To Overturn Document Decision

(Continued from Page 1)

stated in its June 1 petition to the appellate court.

Today's arguments mark the second time IBM has brought suit against Edelstein in the Second Circuit and the fourth time the firm has locked horns with the Justice Department in the higher court. The government has often protested that a review of one aspect of the case by the appellate court before the trial in the district court is complete is unusual and further complicated by the complexity and length of U.S. vs. IBM.

Justice Department attorneys believe IBM should wait until Edelstein has made his final decision and then appeal the whole case if the decision isn't in the firm's favor.

But IBM maintains Edelstein's orders "are systematically stripping the defendant of virtually all protection of the attorney-client privilege and much of the protection of the work product rule both in this case and in several other federal courts since the same facts and issues involved [in the district court] have been and are being litigated in other circuits."

If the matter is not reviewed by the appellate court now, "the defense will be so prejudiced that the only course open to this court will be not only ultimate reversal of any final judgment entered against IBM, but dismissal with prejudice as well," the corporation's petition said.

The issue of the protection IBM documents should receive, however, has been reviewed by higher courts before — including the U.S. Supreme Court — and by several judges specifically appointed by Edelstein to review all questions of privilege. IBM has lost the majority of those

scuffles.

Accusing Edelstein of making a "shambles" of the law governing the attorney-client privilege, IBM has told the three-judge panel of the appeals court his decision means "neither a lawyer's advice nor a client's communication given in appropriate confidential circumstances is privileged unless, and only unless, that advice and communication recite 'confidential information' from the client."

In their brief and orally today, however, IBM attorneys will argue that with few exceptions the rule has always been "that all communications between attorney and client made in confidence for the purpose of obtaining or giving legal advice are privileged."

Edelstein made his order without personally studying the contents of any of these documents, the corporation's lawyers have also stated.

Arguing on the judge's behalf in a July 12 response, government attorneys have asked the circuit court to reject IBM's petition because "the documents ordered to be produced are not the traditional 'law shop' documents prepared exclusively by and for attorneys, but IBM corporate documents" found to be non-privileged and without work product immunity after three years of careful review.

IBM's fears that the documents will enter the public record or be used in other trials against the firm can be allayed through a petition to Edelstein to protect them after they have been turned over to the U.S. Justice Department attorneys maintained.

Charging the corporation has withheld the documents for five years with claims

IBM Half-Year Net Gains 25%

ARMONK, N.Y. — Adding still another quarter with "a higher than forecasted volume of outright purchases," IBM showed earnings increases in the second quarter and six months of 26.5% and 25.5% respectively compared with year-ago figures.

Revenue gains were 14.8% in the quarter and 15.7% in the half.

For the six months, IBM earned \$1.137 billion or \$7.57 a share compared with nearly \$906 million or \$6.09 a share in the same period last year.

In the half, outright sales rose nearly 43% to \$2.744 billion while other income increased almost 27% to \$224.3 million.

Gross revenues rose 15.7% in the half-year to \$7.828 billion compared with \$6.768 billion in the same period last year.

During the quarter, earnings reached nearly \$593 million or \$3.94 a share compared with almost \$469 million or \$3.14 a share in the year-ago period.

Gross revenues rose 14.8% to nearly \$4.014 billion compared with \$3.496 billion in last year's second quarter.

This includes sales of \$1.457 billion, up 42% over the year-ago \$1.025 billion.

During the quarter, IBM's "other income," mostly interest, rose almost 38% to \$117.3 million compared with \$85.1 million in the same period last year.

"Operating results for the second quarter and for the six months continued at a very satisfactory level," IBM Chairman Frank T. Cary said.

The second quarter was characterized by a higher than forecasted volume of outright purchases of data processing equipment with volumes substantially greater than the comparable period of last year.

"As previously pointed out to stockholders, outright purchases result in the immediate realization of income while income from rental transactions is realized over a period of years," he observed.

"Gross income from rentals and services increased 4.9% over the comparable 1975 period. This relatively low rate of increase results from the high level of equipment purchased in recent periods," Cary said.

Rental and service income for the half totaled \$5.084 billion.

"Incoming orders for DP equipment are continuing at a strong pace," Cary added.

of privilege and work product, the government said in its brief IBM is legally incorrect in asking for an extraordinary writ of mandamus to seek an interlocutory review of Edelstein's order requiring the documents to be produced.

If received, the mandamus and review by the second circuit would have the effect of reversing the district court judge's order.

The arguments this afternoon will be heard by Circuit Court Judges Hays, Van Graafeiland and Meskill. Edelstein will

most certainly not adjourn the regular session of U.S. vs. IBM in the district court to hear the appellate arguments, a member of his staff said.

The arguments were originally scheduled to be heard on June 11, but were postponed at the government's request.

Thomas D. Barr, lead IBM attorney, will argue the matter before the circuit judges for his client and B. Barry Grossman, chief of the appellate section of the Justice Department's Antitrust Division, will handle the government's claims.

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Seven-Point Scale Proposed

Sensitivity Urged as Personal Data Rating

By Nancy French
Of the CW Staff

NEW YORK — Personal information should be classified by sensitivity level before it is stored in expensive computerized information systems because it is unnecessarily costly to protect a person's phone number with the same zeal as his psychiatric history.

Toward that end, the Rand Corp.'s Rein Turn proposed a seven-point sensitivity scale for personal information.

Personal information becomes sensitive when its uncontrolled

dissemination may have adverse effects on the data subject or when it shows the individual does not possess the values of his acquaintances or those making determinations affecting him or society, Turn told a recent conference here.

Such information may include an individual's past transgressions, views or associations; results of medical or psychiatric examinations; or information on an ongoing criminal investigation of the individual, he explained.

The Privacy Act of 1974 as well as a number of state laws require information collectors to assure individuals are not harmed, embarrassed or inconvenienced as a result of the use or misuse of such personal information, he said.

The adverse affects of revealing personal information on an individual to others or to the individual himself may range from mild annoyance, such as junk mail, to loss of life, such as occurred in Greece when it became known that a U.S. Embassy employee was an agent of the Central Intelligence Agency.

Who Sees Data?

However, a consideration in setting up a classification system is identifying the recipients of personal information, Turn said. These can include:

- The data subject or those representing his interests, such as his family, guardian, physician, lawyer or accountant.

- Personnel of the recordkeeping organization, including those who have a specific need to use the information and those who do not.

- Organizations with subpoena power, such as courts, grand juries and investigative committees at various levels of government.

- Any member of the general public who is interested in seeing the information.

To satisfy both the individual and the organization that needs the information, Turn suggested a seven-point sensitivity scale.

Category 1 would be limited to information that is public by

statute, such as a property tax roster, he said.

Individuals would know of its existence and also have access to it. Authorized users and others in the agency that maintains it also could access it. The information would be subject to subpoena and open to the general public, Turn proposed.

Category 2 data would include information that is considered public but not by statute, such as employee telephone directories. This information would be available to the same individuals as Category 1 data, he said.

Category 3 data would be limited official data, such as personnel records. Turn said the data subject would know about these records as well as having access to them.

The agency that maintains the Category 3 data would permit users as well as others in the organization to access such data, and it would also be subject to subpoena. However, this information would not be open to the general public, he said.

Category 4 information, including such files as payroll records, would be considered restricted. While the individual would know about these records and have access to them, users would be somewhat restricted.

Specific authorized users would be defined and others would not have access to them, Turn said, adding the data would be subject to subpoena, but would not be accessible to the public.

Category 5 information would include data that is confidential by statute, such as social research data.

Its existence would be common knowledge to the individual to whom it pertained as well as accessible to him. It would also be accessible to authorized users within the collecting organization, but would be closed to all others within the collecting organization. It would not be subject to subpoena nor available to the public, he proposed.

Category 6 information would

include those files ruled sensitive by statute and include such data as psychiatric examination records and some level 4 and 5 information, he said.

The individual would know of the records' existence, but would not have access to it, Turn explained. Within the user organization, only authorized users would have access.

No subpoena could force the collecting agency to produce Category 6 data, and it would be closed to the public.

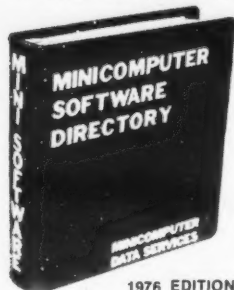
Into Category 7 Turn placed data that is secret by statute and includes information such as crime investigatory records. No one would have access to it except for authorized users in the collecting organization, he said.

Suggesting three security classifications for the data categories outlined, Turn said information in categories 1, 2 and 3 would be protected sufficiently with basic memory protect devices that would shield it from physical harm.

Information in categories 4 and 5 would require marking of hard copy and accountability requirements such as audit logs and access control in addition to simple physical security, he suggested.

Categories 6 and 7 would require dedicated systems, encryption, full accountability and, in some cases, off-line storage, he said.

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NCIC Warns Some '76 Ford Trucks May Have Same VIN as '67 Models

WASHINGTON, D.C. — The Ford Motor Corp. is using the same vehicle identification numbers (VIN) for its 1976 trucks that it used in 1967, making law enforcement still more complicated for the police officer on the beat.

According to a recent newsletter published by the National Crime Information Center (NCIC), the organization that maintains computerized records of stolen property, this duplication could result in a 1967 truck and a 1976 truck with the same engine and body type being on the highway at the same time.

Although a Ford spokesman said the likelihood of a repeat number is very small because a 1976 pickup would have to be built at the same plant to the same specifications to be assigned the same number as a 1967

model, both Indiana and Oregon discovered the problem and reported it to the NCIC, the newsletter said.

The Ford spokesman emphasized the duplicate numbers "do not violate the law... but steps are being taken to restructure the VIN system to avoid duplications in the future."

NCIC users have been alerted to this "potential problem" when making operational inquiries on a vehicle and when entering vehicle records, felony vehicle records and license plate numbers.

An auto is numbered in four different places, according to the Ford spokesman: on an addressograph plate near the driver's door, as a stamped impression on the frame and in two hidden locations.

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HEW-Ordered Quality Control Program Helping States Reduce Welfare Errors

By Catherine Arnst
Of the CW Staff

WASHINGTON, D.C. — "Historically, the only thing a computer system has been used for in a welfare agency is issuing checks."

The Department of Health, Education and Welfare (HEW) has required states to change that tradition, however, by instituting quality control (QC) programs to reduce the number of and causes for ineligible and incorrectly paid welfare recipients.

QC is a management tool used in industry for evaluating and controlling the quality of products or services. The goal of HEW's computerized QC program is to lower each state's rate of ineligible cases to 3% and rate of overpayment to 5%.

As of June 30, 1975, nine states had met the goal for ineligibility and two for overpayments. Approximately \$980 million has been saved nationwide since QC started, according to Dr. Victor Kugajevsky, director of the HEW department that oversees the QC program.

"This is the first time the welfare program has been made accountable," Kugajevsky said. Because of this, the drive to institute the QC system ran into roadblocks of both a systems and human nature.

Regulations requiring a QC program were issued by HEW in 1964, but states were slow to implement the program. In 1973, the agency issued new regulations which called for withholding federal funds if errors crested the prescribed tolerance levels.

The threat of withholding funds worked; today, all states have QC programs in their welfare systems.

The QC program operates by examining a sample of cases each month for determination of eligibility and payment status. "This process consists of ordering, handling and processing the data collected in the review process. It includes preparation of monthly status reports and maintenance of process control charts," Kugajevsky explained.

Prototype System

HEW made available to the states a prototype of an automated system which was developed by several consultants working with advisory boards representing the states, he said.

The system has three purposes; to permit welfare payments, to measure data against other social security systems within a state and to analyze any errors made.

Three problems occurred most commonly when states implemented the system, Kugajevsky said.

"A lot of states have central DP units which do all the processing for the state. To correct errors you must have a quick turnaround, and often this is a low priority at a state's data center," he said.

Secondly, states that already had automated welfare systems had problems interfacing with HEW's QC system.

The third problem was that "the welfare staff was not trained in the use of the system" and so resisted using it, he said.

The reaction of welfare employees to QC was "by no means an open-hearted

embrace," Kugajevsky recalled. The manager of one welfare program, however, welcomed the system "because it was the first time he knew what was going on."

Because a QC system must interface with another information systems and exchange information, privacy was a major concern.

"There is always concern about protecting the confidentiality of welfare recipients; because they are receiving public funds, they are under closer scrutiny. It's inevitable."

"However," Kugajevsky noted, "checks cannot be made on a recipient's employment and finance records without his permission."

Once data is obtained on the sample cases selected for QC, it is analyzed to determine whether errors were reduced to meet the goals and which error rates are increasing and which are decreasing, to identify clusters of errors which can be addressed specifically by corrective action, to identify causes of errors and to prepare summaries and explanations of QC findings for dissemination and use in planning and evaluating corrective action.

Flat Rate Advocated

There is still criticism of the QC program and its purported effectiveness in reducing errors. "The most unreasonable thing about QC is the use of industry standards of measuring products for measuring human services," according to Horace F. Jackson, deputy commissioner of the Bureau of Fiscal Operations for South Carolina.

Jackson feels the 3% and 5% error rates are arbitrary even though they may sound reasonable. He also believes the QC method is too simplified: "There was a lot of arm-twisting done to get a simplified method sold to the public."

A more effective method of reducing welfare errors than implementing a QC system would be to use flat grants, Jackson suggested. With a flat grant, every family unit on welfare would be paid the same amount for rent, transportation, etc., regardless of its actual expenses.

In South Carolina an ineligibility rate of 10% in 1973 is now 3.8% because of flat grants, Jackson said.

All states that use the flat grant method have reduced errors approximately 7% more than states without such a system, Kugajevsky said.

"The only area where flat grants help is in computational errors," he explained, noting the biggest cost in errors is in fraud rather than computational errors.

DP Chess Play-Offs Set for Amsterdam

AMSTERDAM — Spectators are welcome to the play-offs of the sports event of the computer world — the European computer chess championships.

Eight computer programs will match wits here on Aug. 9-11 as they contest for four places at the world championship tournament in Toronto next year.

The eight participants will be Beal and Master, both from the UK; Tell, Switzerland; Daja, Orwell, Schach and Charlie, West Germany; and Papa, from Hungary.

Communications will be handled through terminals, installed in the tournament hall, which will be directly connected to a CPU situated in the country of the participant.

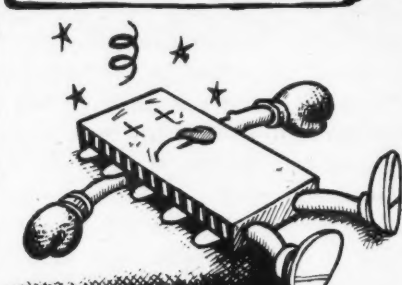
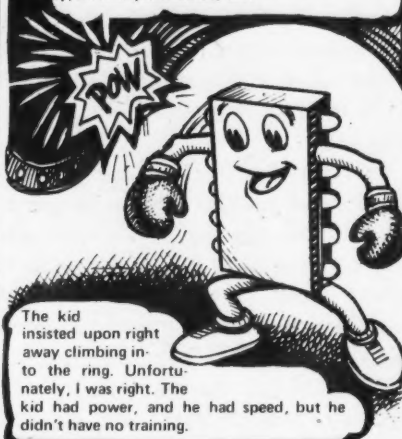
A move of the opponent will be typed on the terminal, after which the computer will calculate the answer and record its move on the terminal in a typed form.

THE LEGEND OF MICRO-KID

Episode one



He hit the bag so hard it plumb came out of the ceiling. It was impressive, but what good is power without speed. So I took the kid over to the speed bag, and by golly, he had quick hands, too.



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Techtran 4100 Datacassette	950.00	54.95



INTERDATA 300
\$2,725



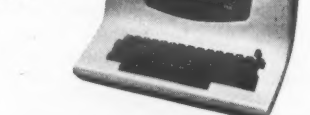
DECWRITER II
\$1,625



TI 743 KSR
\$1,295
TI 733 KSR
\$1,490
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LEAR SIEGLER
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ADDS 580
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Editorial

Many Things to Many People

The announcement by IBM of its 370/138 and 148 [CW, July 5] is many things to many people. It is loaded with complexities and, some analysts expect, clues to IBM future systems (FS).

At any rate, it provides some excitement in what had promised to be a long, hot summer in anticipation of FS someday and, possibly sooner, more 370 look-alikes from other sources.

Possibly the announcement is a move designed by IBM to lead users into the virtual storage fold and/or a reaction against future IBM CPU look-alikes that offer price/performance advantages such as have been rumored in the 135 and 145 sizes.

The first thing one notices is the low purchase prices. Minis aren't the only type of computer coming down in price these days. Aided by use of Mosfet memory, prices of the 138 and 148 are nearly half those of the 135 and 145, respectively.

Compare: a 1M-byte 148 sells for \$689,000 compared with a similar-sized 145's price tag of nearly \$1.3 million. And the ratio is similar with the 138 and 135.

Two for the price of one? Although IBM hasn't announced multiprocessor versions of the new machines, they may be loosely coupled, the firm said.

But in the case of the 138 and 148, low purchase prices alone do not make an IBM announcement, which industry observers termed "very complex," both for what it said and failed to say.

Maintenance charges for the machines, and especially the 145-III, are higher. The charge is \$304/mo more for a 512K-byte 138 than a similar 135, while maintenance for the 1M-byte 148 is \$210/mo more than for the 145.

However, as if encouraging 145 users to proceed straight to the 148 rather than to the 145-III upgrade, maintenance on the -III with 2M bytes is \$3,186/mo compared with \$2,405/mo on the 148 and \$2,960/mo on the 145.

Certainly there were signs something was going to emerge from Armonk. IBM is charging for its 512K bytes of memory the same price it announced when it cut prices on the memory [CW, May 24].

IBM also declared an end to OS/MFT and MVT support beginning in May 1977 [CW, July 5]. And the new models of the System 32 displayed lower lease/purchase ratios than other members in that family [CW, June 28].

The question has to be raised: If Amdahl Corp. and purportedly others could design and build machines with better price/performance ratios, using IBM software, why not IBM?

When it feels a push, the giant has proven it does not take long to respond. Perhaps users should thank the competition for their latest basket of goodies.



Letters to the Editor

ACM Should Forget Controversies, Concentrate on Strength in Unity

I have been reading with increasing dismay the highly personal comments concerning the recent Association for Computing Machinery (ACM) election in *Computerworld*.

It is very distressing that a highly respected and motivated person such as Jean Sammett should end her term by castigating so gracelessly her elected successor to the ACM presidency [CW, June 2]. I sincerely hope Herb Grosch will not feel compelled to continue his own comments and

reply in kind.

Such statements are fratricidal and can only damage ACM and its worth to the membership. What is worse, these statements are irrelevant. The one central issue of the election was not individuals, but whether there was an orthodoxy of belief and action that should be maintained by the association.

A majority of the membership voted against orthodoxy. Their votes represented their belief that ACM is strengthened by the diversity of its members — and that the association is strongest and most productive when anyone who pays dues can vote and play a part in its work as long as he is a computer person.

Now is the time to forget personal controversies, likes and dislikes and, still retaining our diversity of opinion, come together to support and strengthen ACM as a truly professional society.

Gordon Smith

Greenwich, Conn.

Practical Solutions Needed

Alan Taylor's column, "Feedback to Management Marks Second Generation" [CW, June 21], would have us believe management is nothing but a bunch of dummies who are willing to accept any solution whatsoever to any problem. He also would have us believe the "first-generation" systems analyst looked for a result with the least computation for the simplest solution.

He somehow tried to tie these principles to a case in point — airline overbookings. Not only are these principles inaccurate and repulsive to systems analysts and management alike, but they do little to explain the overbooking problem.

Taylor is one who will go to the nth degree to explain to his readers some obscure check-digit procedure or poor case of forms design, but how about some constructive explanation and analysis of something interesting such as the overbooking problem?

Good communication and feedback between managers and analysts are important, but not sufficient to solve problems — intelligent and practical solutions are.

Edwin Levy

Philadelphia, Pa.

Could Grosch Be Sent Away?

For several years I have been reading Herb Grosch's egotistical jabbering in *Computerworld*. My only reason for doing this (after the first few issues) was hoping, based on odds alone, that sometime he might have something intelligent or informative (nonbiased) to say.

Alas, this has not been true.

Could someone send him to Russia, Germany, Japan — anywhere far off — on a one-way, expense-paid trip?

R.W. Minnis

Denton, Texas

Data Past

Five Years Ago
July 21, 1971

WASHINGTON, D.C. — An increase in federal financial aid led to increased collection and dissemination of intelligence data on potential troublemakers in many of the new police computer systems. The stress in such systems, which had received a portion of \$6 million in block grants from the Law Enforcement Assistance Administration (LEAA), was on organized crime. But the systems were also suspected of containing information on people engaged in lawful, nonviolent protest.

WASHINGTON, D.C. — Federal agencies were found to spend nearly \$3 million each year for software without any centralized direction or guidance in what they were doing, according to a report by the General Accounting Office (GAO). The result is often duplication of effort or purchase of programs already available elsewhere in the government, GAO said.

Eight Years Ago
July 17, 1968

WASHINGTON, D.C. — Six computer mainframe manufacturers accepted tough contract policies drawn up by the U.S. General Services Administration (GSA). The contracts were an attempt on the part of GSA to get better terms from equipment suppliers in the area of responsibility for performance specifications.

WASHINGTON, D.C. — The first two IBM 360/95s were accepted by the National Aeronautics and Space Administration's (Nasa) Goddard Space Flight Center. One of the 95s was to be used as the primary DP facility for the center's Tracking and Systems Directorate; the other was being used by astrophysicists to create mathematical models of the universe and to simulate evolution of heavenly bodies.

Battles to Come

One of the best editorials to run in this paper in many months was in the issue (June 7) distributed at the National Computer Conference. In it, CW noted the poor user participation currently expected in the forthcoming battle, AT&T versus everybody, in Washington. The piece especially deplored the failure of professional organizations to act, or even to take sides, in matters vital to their membership. And it pointed to the tremendous resources, financial and massed-stockholder, which Ma Bell is throwing into combat.

Gray's *Elegy* had it pat:

Let not ambition mock their useful toil,
Their homely joys, and destiny obscure;
Nor grandeur hear with a disdainful smile,
The short and simple annals of the poor.

Although, in the coming fight, AT&T is more pugnacious than disdainful!

I'm deeply interested in whether, even in a few short months, something can be done to produce at least one major user submission, one major professional position, on data communications policy for the next decade. And it isn't just Bell: we all shudder in the cold wind of Armonk as the Gray Giant advances its plans for orbital empire.

The editorial noted the fears of ACM, DPMA and similar associations — notably, fear of losing their tax benefits. But that seems to me not too important a matter. The thing that hurt the Sierra Club, when IRS gave them the business, was the loss of tax-deductible donations, especially the larger ones. What ACM or DPMA, or AFIPS itself, would encounter if they made a substantial lobbying effort is not completely clear (ACM has a committee studying the matter), but probably mostly increased postage costs: one percent of budget, maybe.

There is legislation on the Hill at this moment proposing explicit limits, rather than the pres-

ent "not... a substantial part," on lobbying expenditure by outfits like SHARE or ACM. Passage would help, but with elections coming, cannot be counted on. Moreover, the failure in the user world is a failure of nerve and of coordination, not primarily of money; a percentage of AFIPS budget far too small to attract the praying mantises of IRS would cover the printing and presentation of a useful if small ("short and simple annals of the poor") document if volunteers would prepare it and governing bodies OK it.

I believe it can be done, primarily by layers of insulation. Take the user group case — GUIDE, for example. An *ad hoc* committee of volunteers works up a pretty vigorous position and coordinates it with similar committees. It then, without attempting to get general membership approval, submits it to the Joint Users Group. That committee has been moribund for some years, but could be reactivated at the stroke of a pen — my pen, in this case! Meanwhile, ACM proper, DPMA, ASM and so on have their own small, activist groups at work, and also in coordination with the GUIDE/DECUS/HUG etc., etc. cells.

Again without attempting to get broad membership concurrence, the associations forward their positions to the AFIPS Washington office, which prints up a consensus pretty-like, picks a small cadre of testifiers for the inevitable hearings, and puts out a Heavy Press Release describing the submission as the "consensus of AFIPS member societies and affiliated organizations, comprising in all some 120,000 professional users of data communications facilities."

What would it take? Well, volunteers, for starters. If nobody has specific objections and positive recommendations, the machinery is useless. I assume the woods are full — hence, this column: to draw 'em out!

Next, a coordinator or coordinating group (very small). A re-energized JUG would do nicely, for a letterhead.

Money? I don't think so; not until the last level, AFIPS, anyhow — and then very little. Two or three thou for printing and travel, maybe.

Approvals! Well, the idea is to slide the papers upstairs quickly and quietly. That means officer or executive council action, not big-board votes or membership referenda. At the end, the AFIPS directors would almost certainly be involved, but many of them would have been active previously, within their own associations: if they had not approved then, nothing would have moved toward the final AFIPS level.

And of course, above all, awareness. If a few key people care, in each society, action is possible. If instead we have complacency, Pharisaism, or opposition upstairs, in even two or three of the major contributor groups, it won't fly. If the top men and women are aware, if they want to help, they can; mechanism can be generated.

AT&T cares. The other hardware mongers care. I'm positive that thousands of professionals care. The question is, how many? And how much?



Herb Groch

AICPA DP Guidelines Have Room for Improvement

The problem, as seen from the American Institute of Certified Public Accountants' (AICPA) headquarters, was simple. Accounting firms across the country were complaining about their computer systems. They simply didn't know what to do with them after they had been delivered.

There had been little or no planning apparently, or the plans had not come to fruition as expected. The accountants were unhappy, but seemed to be to blame themselves for being taken in by salesmanship or for not carrying out their own responsibilities.

The answer also seemed simple: Prepare a set of guidelines for the "little guy," who can't even afford to keep a single management advisory services man around, the man who, in the opinion of some studying the problem, really found it impossible to evaluate the available options.

So last year the Computer Applications Subcommittee, under H. David Smith, prepared "Guidelines for General System Specifications" for a Computer System," available from AICPA at 1211 Ave. of the Americas, New York, N.Y. 10036.

The guidelines were approved this year by the Computer Serv-

ices Executive Committee under Richard J. Guiltinan and have just been issued by AICPA.

Trouble started with the title. It was not restricted in any way. It seemed to cover any system. Certified public accountants (CPA) have many roles. Through the Management Advisory Services, AICPA members are encouraged to sell "expertise" in computer areas. Unrestricted guidelines blessed by AICPA would be expected to encompass what was needed to provide this service expertly.

The elementary yes/no-type guides given don't begin to approach the necessary sophistication, but only a careful reading of the preface shows who the audience is assumed to be.

The guidelines, may, as is the hope apparently, permit different offerings to be put into some form of a priority order. A proposal that scores 15 "yeses" on documentation and three on workload expansion is presumably put higher on the priority list than a proposal that only gets 12 on documentation and one on workload expansion.

At least, that is the only way I can see the guideline scores being used by the novice to whom it is really addressed. And it might work if there were only a couple of categories.

But the guidelines are quite well categorized. There are checklists for:

- Documentation.
- Processing throughput.
- Data storage.
- Workload expansion capability.
- Programming language and

operating software.

- Data controls.
- Security.
- System uptime.
- Vendor support.
- Physical facility requirements.
- Personnel requirements.
- Business relationship with the seller of the system.
- Cost justification.

Yes/no answers are suggested for all these categories. By the time one has counted the yes answers in each of the 13 categories, it is unlikely he will be able to see a nice, clear superiority of any one system in all 13 areas. Then what does he do? The guidelines give no hint as to how to resolve that problem.

In any event, even the user has conquered this area, his problems have not been solved. Has everyone answered the questionnaire in the same way?

With ambiguous questions it is easy to misunderstand answers. For instance, one question read: "If the programs in the system impose any limits on the volume of application units processed, is it possible to modify these programs to increase the limits?"

The answer is to be given as simply yes or no.

Now, how is this going to help anyone? There aren't many cases where, if it were important, such a question couldn't be given a yes answer — even if the increase were a trivial one and only managed by hurting something else other than the volume, such as the throughput speed.

After all, if a user runs out of table space, he can always re-

duce the number of input/output buffers in use. That would do the trick, but nowhere is the user asked to explain how he would increase the limits.

Another example of a misleading question in the guidelines checklist read: "Does the system provide internal hardware and/or software functions to detect (a) input errors caused by improper input preparation?"

The question can't mean every error, can it? So it can be answered "yes" if any error is catchable. That's not much and can even make people think all catchable errors are caught, when it is not true.

How "Adequate"?

A third type of ambiguity can be seen in the security provisions. The question is: "Will the operation of the system involve adequate protection of data from improper disclosure or modification and from damage or loss?" Again, a yes/no answer is required.

But what is "adequate" protection? Does this mean there are some precautions against broadcasting the file contents? I don't know of any case where there aren't some precautions available. The point that needs evaluating is how good the precautions are. It simply is not a yes/no question.

Here lies the clue to what is wrong with this system. The guidelines offer a simplistic approach in an area which is simply unsuitable for such treatment. Data processing at any level requires more than such an

approach.

An operation such as AICPA should not, by publishing this book, give the benefit of its general blessing upon such poorly defined, poorly qualified material.

That is not to say there is no room for some form of cookbook on system specifications that would be useful to virgin CPA accounts. It will have to be more carefully prepared and less dogmatic than the current publication, however.

Contract considerations have changed since 1969, for instance. Equipment analyses should show equipment, not vendors' names, and 1974 surveys (known to be seriously incomplete) should not be presented as probably showing 1976 percentage uses of the top score of firms.

Actual stopwatch timings should not be claimed for performance tables unless the data is available, and audience qualification in specialized areas should be put on the front, not hidden in the preface. All these areas and more need to be clarified before this is republished.

Hopefully, AICPA will proceed with its current intentions of presenting some worthwhile material in this area — but, if it can't do better than this effort, the world will be better without any at all.

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Cause of Death Guilt, Not Backlog

I cannot understand why *Computerworld* would publish an article such as "Data Entry Backlog Cited in Death of Motorcyclist" [CW, June 21].

It appeared to reference the data entry backlog, obviously from the headline, as a cause for the death of the motorcyclist.

The article was very clear that the individual was chased on what was thought to be a stolen motorcycle when in fact it wasn't, and data entry was the cause as it had not been correctly updated.

I'm from the old school and continue to believe that anyone who feels guilty, for whatever reason, and runs from law enforcement officers has surrounded himself with guilt and that this guilt feeling was cause of death and not the backlog in the data entry.

While the article may have been technically correct, I think it pointed negatively at the DP industry.

Monroe, Wis.

Jim Bybee

Letters to the Editor

GE to Expand Also

The article "Time-Sharing Firms Go Abroad" was interesting and quite detailed, but failed to include the expansion plans of General Electric, the largest supplier of remote data processing.

General Electric has been in the international market since 1969 when it opened an office in London and it has expanded its network into over 20 foreign countries. It is presently plan-

ning to add a "Super Center" in Amsterdam, the Netherlands, as well as expanding its services in South America and the Orient.

Jerry Frese

Pasadena, Calif.

DP Not a Factor

In the July 21 issue, the headline "Data Entry Backlog Cited in Death of Motorcyclist" would lead one to think this person's death was directly caused by a DP problem, but, after reading the article, I discovered it was a

simple case of a person violating the law, the police giving chase and the offender suffering from his own lack of judgment.

Was the data entry backlog really a factor at all? I think not. But even if it was, blame should be put where it belongs.

Perhaps it causes some people to feel too important when they feel they are involved in life and death situations. In some cases DP is utterly important in the continuation of human life, but whether it is or is not, sensationalism is uncalled for.

James E. Halley

Kansas City, Mo.

Infonet Omitted

The article, "Time-Sharing Firms Go Abroad" [CW, May 31], unaccountably omitted mention of Infonet, Computer Sciences Corp. (CSC) remote-services network.

Infonet has been serving Europe via satellite link to Brussels, Belgium, since early this year. Our Brussels headquarters is linked by land lines to Infonet facilities in London; Germany; Frankfurt; and Paris.

The U.S. network is also providing service via satellite to Madrid, Spain, where a subsidiary (Entel-Ibermatica) of the National Telephone Co. of Spain is establishing an Infonet network under a licensing agreement with CSC.

James Furlong

El Segundo, Calif.

Acceptance Automatic

Like many, I have followed the women's fight for equality very closely in *Computerworld* the last few years.

In the past eight years in DP, I, too, have "fought" for what I felt were my equal rights. I found, however, I was fighting against myself. When I finally truly accepted myself as a competent individual, acceptance from others was automatic.

Sure there are guys around on ego trips who will feel the need to suppress women they suspect of being too sharp, but in my experience these have been the exceptions.

It hasn't been easy for the men either. They are now faced with the problem of restructuring ideas that have been instilled in them from childhood. Some, the more confident ones, have done a better job of this than others.

It's all a matter of time and reeducation. As we firmly and honestly assert ourselves as capable human beings, acceptance, as such, will follow.

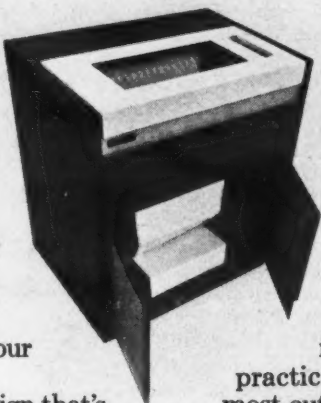
W.A. Anthony

Roseburg, Ore.

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Cost System, Communication Improves DPers' Image

By Don Leavitt
Of the CW Staff

WASHINGTON, D.C. — The DP function today has a reputation for being unnecessarily expensive and, to make matters worse, the users of DP services many times feel that their needs are not recognized by DP and that DP seldom responds to their requests at an acceptable rate, according to P. Michael Briggs.

Speaking at a recent conference here, the executive vice-president of Atlanta-based First South Services, Inc. (FSS) said such accusations "may be true to some degree," but a good cost system and effective communication can eliminate "perceptions not based on fact" and have a major impact on the basic problems of expense and responsiveness.

Even more basic moves are sometimes needed. He noted, for example, that FSS was organized as a DP subsidiary of First National Bank of Atlanta "primarily to isolate DP costs and force development of cost communication through DP pricing."

FSS has, in fact, established good cost control with the aid of an automated financial control system which allows "good" responsibility accounting through 40 separate profit/cost centers, he said.

Carried one step further, all costs within the DP organization are internally allocated monthly to one of three major revenue producing divisions — marketing, development and production.

While costing is done in some detail, charging users for services needs to be relatively simple, in user terms and understandable, Briggs continued. All services should be charged to someone, whether in the bank, outside or internally within FSS, he said.

Pricing information is communicated to the user in "a very structured environment. Generally, unit prices are reviewed and set annually," the officer said, adding prices are given users before budget time each year.

To make sure the user can relate the prices to his area of responsibility, there is a unit price given, for example, for each demand deposit accounting (DDA) item processed rather than a charge for hours of machine time used to run the DDA program, Briggs said.

Turning the presentation to development systems, FSS vice-president Raymond J. McArdle said great care had to be taken in preparing and presenting the bill for this part of the DP operation.

The user "least understands project costing because programming projects tend invariably to take more resources and time than originally comprehended," McArdle said.

Certain criteria must be established before a customer billing system can be implemented, he said, citing fully absorbed costing, user authorization of any expenditure and the use of a single rate for all levels of sys-

tems skills as three of the basic tenets of the FSS approach.

Four factors are used in determining the single rate, McArdle went on. Administrative time (the nonbillable portion of an individual's total time), corporate overhead and total yearly man-hours of all billable personnel are all divided into the service's yearly budget.

The flat rate approach has been used for the past two years at FSS, replacing a scheme of different rates for different jobs and skills levels which suffered from "undo complexity and customer confusion," according to McArdle.

IDMS-Linked 'Shadow II' Features Multitasking, Access Method Choices

WELLESLEY, Mass. — A teleprocessing and multitasking monitor developed in the UK, the Shadow II system is now available in North America from Cullinane Corp.

In addition to supporting the British software in stand-alone applications, Cullinane has interfaced it with its own IDMS and is moving toward a complete integration so IBM-oriented users will have another independent source for combined data base/data communications support, according to a spokesman.

Developed by Altergo Ltd.,

Also helping to cut through previous confusion has been the building of a communication channel to and from the customer. This was done, McArdle said, by assigning one specific analyst to each FSS customer.

Others participate in project meetings and other development efforts, but one person is, responsible, he added.

To support the assigned analyst, the installation also organized a series of committees and mid- to long-term plans to keep projects moving and to allow new — sometimes emergency — projects to be handled without throwing the entire center out of kilter.

The primary goal is to get projects done close to estimated cost, he said.

In January of this year only 15% of the projects were completed within $\pm 10\%$, McArdle acknowledged, but February saw more than 40% of them within that range, and the April figure rose to more than 60%.

The FSS approach, Briggs said, has had three positive results: everyone is more aware of DP costs; that awareness has led to much more specific communication between the data center and the user, leading to operational benefits; and now "the DP organization can hope to achieve a high degree of credibility."

Shadow is said to perform "all the functions" of monitors such as IBM's CICS at a fraction of their cost in storage and CPU time and to provide "many functions" not found in competitive systems.

There are, for example, modular routines capable of replacing a whole range of IBM utilities on a piecemeal basis, the spokesman said.

Specifically, Shadow software can be used in place of various data access methods including Btam, Isma, Sequential and Direct, as well as DOS and OS Multitasking, error handling and program library and load routines, Cullinane said.

Other routines provide storage management, program linkage, resource protection and time management, the vendor said.

Beyond "IBM replacement" routines, the monitor includes

both batch and on-line testing aids, a fully automatic logging and recovery system and software paging with relocating loader, according to Cullinane.

Multithreading for Assembler, ANS Cobol and PL/I Optimizer programs, transaction handling and management routines and built-in support for SIGNON and password protection are also among the facilities available.

IBM 3270 screen mapping, protection against updating of records and a full master terminal operator communication system are also included.

Shadow II can run in the same partition or region as IDMS or separately.

Including the IDMS interface, it will be ready for general distribution in September and will cost \$30,000 to \$48,000, Cullinane said from 20 William St., Wellesley, Mass. 02181.

'Pro/Test' Adds Cross-File Standards

BEDFORD, Mass. — Simplifying the effort needed while providing the means of applying uniform rules when creating comparable fields in different test files are the twin goals of the Custom-Data Option recently added to the Pro/Test test data generator from Synergetics Corp., the vendor said.

The basic generator creates a range of test files and documentation — working from existing files, Cobol Data Division entries or user specifications — under control of parameter entries.

Until now, each use of Pro/Test had to have parameters for

each field unless the user was willing to accept the built-in default options.

With the Custom Data Option, installation-specific standard test values — and, if the user wishes, the data format as well — are defined only once, according to a spokesman.

Stored in a library accessible to Pro/Test, they are applied any time the defined field is being generated, he explained.

The stored values can also be used as the basis for calculations leading to the determination of what other values in a file being generated should be.

Warehouse numbers might, for

example, be directly related to parts numbers of items stored at specific locations, the spokesman suggested.

Even with the option in use, the user can override the stored definition by entering field-specific parameters during the preparation of all the other Pro/Test controls, Synergetics said.

The Custom-Data Option has been implemented on all versions — IBM DOS, OS and VS — of Pro/Test and is available free to all users of the package.

The license fee for Pro/Test is \$6,900, the spokesman noted from 1 DeAngelo Drive, Bedford, Mass. 01730.

Comments Still Sought

WASHINGTON, D.C. — The deadline for commenting on proposed draft standards for Basic and Fortran [CW, April 12, 26] is now Sept. 28, according to Robert Brown, secretary for the American National Standards Institute's X3 Committee.

Once expected to end early this month, the comment period was extended when its formal announcement was inadvertently delayed, Brown said.

Comments should be sent to Brown at the Computer and Business Equipment Manufacturers Association (Cbema), 1828 L St. N.W., Washington, D.C.

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Cobol-Based Accounting Runs on Nova

NEWTON CENTRE, Mass. — A library of interactive or batch-mode accounting applications that can be used separately or as an integrated system and written in Cobol so they can be implemented on various CPUs — including the Data General Nova — is available from Management Techniques, Inc. (MTI).

The applications include order entry, inventory control, billing and accounts

receivable, the vendor said, and support for Nova users includes a separately-priced Cobol compiler that runs under RDOS.

The programs provide audit trails, support for inquiries and exception reporting; they can be run on-line or in batch processing mode, MTI noted.

The systems are available with pre- or postbilling and integrated back- and fu-

ture order processing capabilities, a spokesman added.

Open and shipped orders can be accessed by item, customer, promise date and cancellation date, he said.

Inventory systems integrate raw material, work-in-process and finished goods inventory and include a system for reconciling physical to book inventory, controlling shrinkage and appreciation in both units and dollars, MTI claimed.

Designed to run on a 64K Nova or IBM 360, source code for the individual applications — in Cobol F, ANS Cobol or the Nova Cobol — starts at \$5,000.

The Nova Cobol compiler is available for \$3,500, he added from 28 Tanglewood Road, Newton, Mass. 02159.

DBMS Documented

NEW YORK — The March 1976 issue of *Computing Surveys*, recently published by the Association for Computing Machinery (ACM), is devoted entirely to data base management systems (DBMS).

Assembled by Edgar H. Sibley of the University of Maryland, articles cover the origin and evolution of the systems and a description of the hierarchical, "Codasy!" and relational approaches as well as a comparison of the latter two.

The soft-cover booklet can be ordered at \$3 for ACM members and at \$8 for others from the ACM Order Department, P.O. Box 12105, Church St. Station, New York, N.Y. 10249.

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Films Show Management Choices

ENCINO, Calif. — A series of 10 management training films recently released by National Educational Media, Inc. (NEM) depict various organizational development strategies, the company said.

Applicable to all levels of management, the films are available individually so specific subjects can be studied without swamping the student with material that might, for the moment, be irrelevant, NEM added.

Titles of the major films and their respective training aims are "The Peter Hill Puzzle," accountability and cost effectiveness; "Increasing Productivity," the manager's role as change agent; "Flight Plan," planning and problem solving; "Discipline — A Matter of Judgment," objectivity in discipline; "Delegate —

Don't Abdicate," delegation; and "The Time Game," time management.

Four other films devoted to communication and motivation are also available now, NEM said.

Except for "The Peter Hill Puzzle," which lasts half an hour, the films run about 15 minutes. Study material that accompanies each film was designed to be utilized more as a preview and a postshow wrap-up than as the basis for extended study, a spokeswoman noted.

Produced in 16mm or Super-8 movie film or videocassette, the full-color sound productions generally range from \$250 to \$285 each, with "The Peter Hill Puzzle" somewhat higher, she added from 15760 Ventura Blvd., Encino, Calif. 91436.

Comshare Tie Puts NDC On-Line

ATLANTA — The data collection and reporting capabilities of National Data Corp. (NDC) here have been linked with the interactive time-sharing and network facilities of Comshare, Inc. of Ann Arbor, Mich., under terms of an agreement recently signed by the two vendors.

Described as a "third-party supplier of cash management information," NDC collects client data via telephone, magnetic tape, terminals and CPU-to-CPU transmissions.

From this base, it provides clients with daily accounting for deposits, disbursements or balances and other management data such as sales and inventory, NDC said.

Under the NDC-Comshare arrangement, the collected data can now be transferred to Comshare's systems where it becomes

available, interactively, for client-defined analysis, consolidation, regrouping or other manipulative options, Comshare said.

The combined capabilities should give corporate financial management better control over cash balances and deposits, according to Comshare.

Security measures built into both the NDC operation and the Comshare network will prevent unauthorized access to a client's sensitive data, both vendors said.

Comshare provides remote computing services to cities throughout the U.S., Canada and Europe. The corporation is based in the Woverine Tower, 3001 S. State St., Ann Arbor, Mich. 48014.

NDC is headquartered at 1 National Data Plaza Drive, Atlanta, Ga. 30359.

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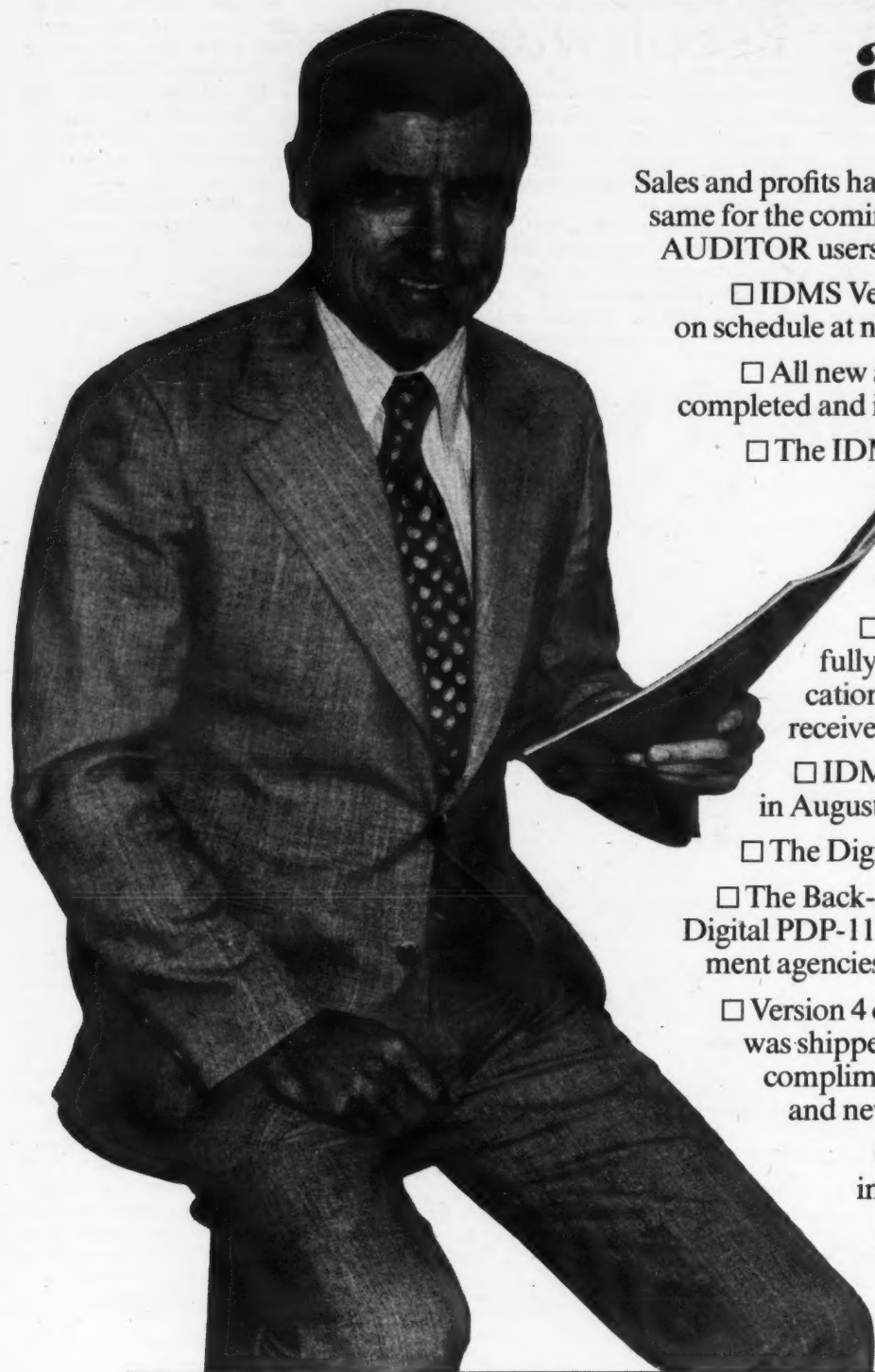
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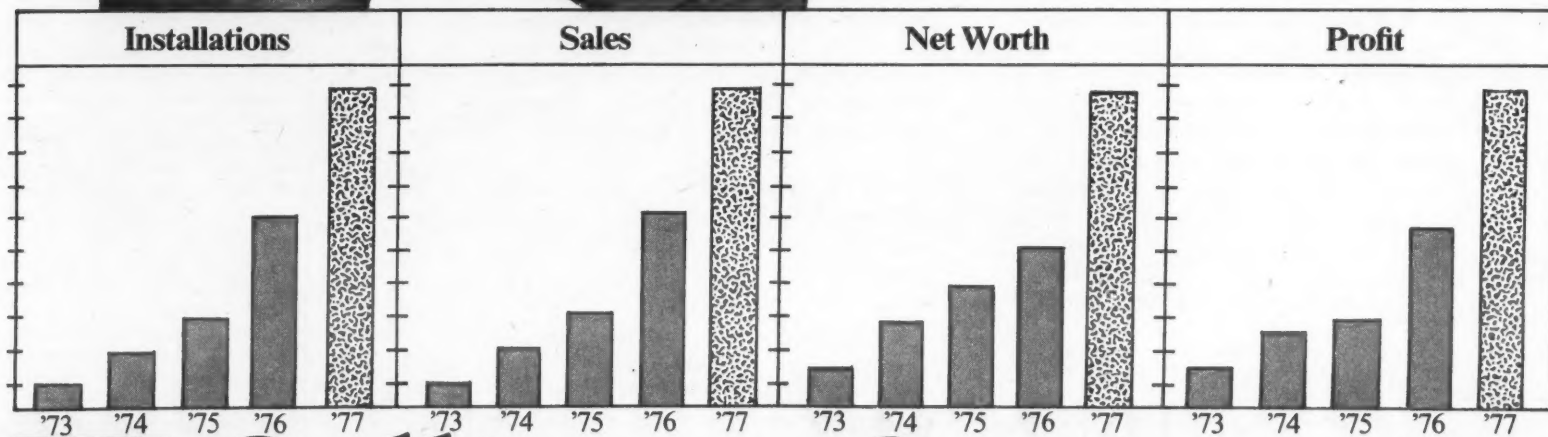
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- ☐ All new and greatly enhanced IDMS documentation has been completed and is being shipped with Version 4 at no charge.
- ☐ The IDMS and EDP-AUDITOR development and support teams have doubled in size during the past year. Senior IDMS technical support personnel have been located in New York City, Atlanta, Cincinnati, and London in addition to the already existing locations.
- ☐ A communications monitor has been acquired and will be fully integrated with IDMS to support a high volume communications environment. This product is so good that we have already received many orders for it.
- ☐ IDMS On-Line Query (Version 1) will be ready ahead of schedule in August 1976.
- ☐ The Digital PDP-11/70 IDMS version is operational.
- ☐ The Back-End Database Management System project (interfacing the Digital PDP-11/70 to the IBM 370) is underway for delivery to four government agencies by February 1977.
- ☐ Version 4 of EDP-AUDITOR /CULPRIT with all new documentation was shipped in May at no charge to users. We have received many complimentary letters about the documentation, ease of installation, and new facilities of Version 4.

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*Audited Annual Reports will be made available to any party seriously considering any Cullinane Corporation product for purchase.



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'Egoless Leadership' Seen Key to Growth Out of DP

By Jack Stone

Special to Computerworld

"Computer center managers are never promoted to executive ranks. They don't have the leadership qualities to make the grade. You know the problem — too much ego involvement."

"As a result, we ignore DP managers in our searches for corporate officers and top executives."

These startling statements were made recently by a principal of a major executive search firm.

Challenged on such sweeping generalities, he replied, "I know it's ironic, perhaps bizarre. American computing centers have such vast number of intellectual and creative people, and so little in the way of executive talent."

My immediate reaction was skepticism. But it is true, individuals rarely arrive in the executive suite with a DP management background (DP vendor organiza-

tions are, of course, not part of this discussion).

To characterize the reasons why DP managers are not generally promoted, I would suggest most of them do not practice the craft of "egoless leadership," a term I have coined from the lead provided by that search firm executive (and consistent with "egoless programming," the term developed by Gerald M. Weinberg in his book, *The Psychology of Computer Programming*).

I define DP egoless leadership as a management style in which actions are taken based on total organization needs rather than the needs of the computer center alone. Such actions fall into the areas of people, performance and profitability, each of which happens to be of vital concern to the executive office.

As an introduction to two lecture/presentations I conducted recently before national DP management and supervisory

audiences, I conducted "show-of-hands" polls on audience views of human relations in the computer center. Nearly all members of both audiences agreed we had "people problems."

Queried further, majorities of both groups indicated problems in every major

virtually every human facet of the business: employee satisfaction, supervisory skills, user/center communications, performance accountability, executive control over DP, technical training levels, Equal Employment Opportunity, management delegation and job enlargement, to note a few.

I'm afraid we must "pin the rose" on the senior DP manager for the current state of affairs. Let's take one case in point — center/executive relations. In spite of the DP manager's usual (and probably justifiable) complaint that top executives have not met center requests for human resources to do the job, the

Peopleware

category of personnel: analysts, programmers, operators, end users and top executives. (An exceptionally large number of attendees even identified themselves as the problem!)

These results are consistent with my prior experience: human relations in the DP environment (my estimate: 85% of the installations) are generally in a deplorable state. And the situation extends to

Readers are invited to write to Stone, c/o Computer Education International, Inc., Suite 222, 2233 Wisconsin Ave. N.W., Washington, D.C. 20007, outlining questions, issues or situations pertinent to human relations and personnel management.

Selected letters will be published in Computerworld, along with commentary by Stone, in a column beginning next month.

Letters should not exceed 500 words and should include the name, title, organization and address of the sender for acknowledgement purposes. This information will be treated as confidential and withheld from publication unless authorized for release by the sender.



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fact remains that the organization looks to this DP manager for leadership in both defining and explaining resource needs to the executive suite.

If there is one consistent complaint from the top floor, it's the continuing fog that seems to surround center requests for increased head count. Many centers leave the impression their tasks are so crucial that their resource requests must go unchallenged, irrespective of other needs in the organization.

But executives are hardly disposed to release precious manpower slots when they feel they are being kept in the dark.

Another case relates to user/center relations. Granting the difficulties in getting these two cultures to coalesce, executives nonetheless expect computer center management to find the pathways to detente and peaceful coexistence.

However, few senior DP managers have succeeded in soothing the unending conflicts between these departments.

Finally, regarding computer center personnel, many center managements seem to bolster the notion they are the elitist groups in the organizations by virtue of its control over this incredible electronic wizardry — the computer mystique personified.

Yet it is often these same centers which suffer the most difficult personnel problems (a sure sign, according to many executives, of managerial ineffectiveness), occupying much time and energy of the executive staff, a situation which tends to dissolve the value of other DP management capabilities.

I submit that executives are also tiring of the organization dislocations engendered by the center in the area of personnel policies. The high salaries, odd working hours, special training programs, select offices, etc. presumably necessary to attract talented DP people have also served to cause deep feelings of resentment in those long-established departments which do not have similar compensation and fringe benefits.

It appears much can be done by DP managers to enhance center performance and their acceptability in the organization by moving toward egoless leadership, being particularly sensitive to the consequences of their actions upon the total organization, the people involved and their own status as viewed by top executives.

FCC Judges Find DDS Pricing Discriminatory

By Ronald A. Frank
Of the CW Staff

WASHINGTON, D.C. — Two administrative law judges of the Federal Communications Commission (FCC) have found AT&T's Dataphone Digital Service (DDS) rates are unjust and unreasonable.

If this decision is allowed to stand, it could mean higher DDS rates for data users. But it is expected that AT&T will object to the decision, beginning a continuing regulatory process that would block any DDS rate change for at least six months, according to an FCC staff source.

AT&T failed to demonstrate DDS rates were just and reasonable, and Bell revenues were "greatly overstated" while investment and expenses were "substantially understated," the FCC judges ruled.

"In its zeal to develop an extremely competitive rate," AT&T deliberately gave the low-speed 2,400 bit/sec DDS user a cost advantage; this was "open,

notorious discrimination," the judges said.

Since AT&T admitted there was little increase in cost with increase in speed, there was no reason why users operating at 4,800- and 9,600 bit/sec and 56 kbit/sec should pay "disproportionately higher charges for service than lower speed users."

As a result of this discriminatory rate structure, both DDS local distribution rates and longer distance rates between digital serving areas "discriminate against the higher speed user," the decision said.

According to the ruling, AT&T also discriminated in its pricing associated with the DDS Channel Service Unit (CSU) and Digital Service Unit (DSU). DDS customers should be charged only for the CSU or DSU units which they elect to use and the DDS tariff should be restructured to eliminate CSU costs as a basic element, the decision said.

Commenting on the decision, AT&T said it was in "substantial disagreement" with the findings. "It is

our position that present rates and regulations for DDS are just, reasonable and lawful in all respects," an AT&T spokesman said. "We will file our objections at the appropriate time."

The DDS tariff first went into effect in five cities. Nineteen cities were later added which had to operate at rates no lower than those offered by other carriers.

The net effect of this was a two-tier price for DDS with some users paying rates as much as 40% higher depending on whether they were in the first five (lower rate) cities or in the next 19 (higher rate) cities. A single rate structure is now in effect.

If the current findings are allowed to stand, AT&T will have to file new DDS rates eliminating the discriminatory aspects spelled out by the FCC judges.

AT&T has until Aug. 2 to file exceptions to the ruling. If none are filed, the decision would become effective in 50 days. The AT&T objections are expected to be filed within the required period.

With SDLC System

Bank's Supermarket Terminals One Step From EFT

By John P. Hebert
Of the CW Staff

WILMINGTON, Del. — The Wilmington Savings Fund Society (WSFS) here has begun using a system described as one step away from electronic funds transfer (EFT).

The bank has installed communications terminals at four local supermarkets to make semiautomatic debit entries to a customer's checking account when a check is cashed, WSFS senior vice-president William H. Robinson Sr. said.

By August or September, Robinson said, the terminals will be working at 26 area supermarkets, replacing a manual system in which grocers handle the bank's plastic identification cards and standard form checks that permit customers to cash checks up to \$100.

Because the bank felt it wanted "the exposure" of guaranteeing checks for that amount of money for 30,000 WSFS customers, it also wanted the security afforded by the speed of on-line operations to immediately verify account status, he said.

At present, four IBM 3606 financial services terminals are carrying out the initial phase of the on-line operation by recording customer and account information on any check cashed up to \$200 and sending the information to the IBM 370/145 CPU at the bank's headquarters, which immediately verifies the customer and amount.

Since the mainframe at the bank is not used to update checking account information, however, the data is unloaded from the system's disk drives at night and brought to a local service bureau for processing, according to Arthur Hooper, the bank's senior vice-president responsible for DP.

The terminals have been added to an on-line network comprised of IBM 3604 teller terminals working under an IBM Synchronous Data Link Control (SDLC) line discipline in each of WSFS' 18 branches, Hooper said.

Customer account information from the supermarket-based portion of the system enters and exits the 4M-byte DOS/VS CPU under IBM's Virtual Telecommuni-

cations Access Method (Vtam) through an IBM 3705 controller working under IBM's Network Control Program.

From there, it passes through a 36K-byte 3601 communications controller and out of the bank over private lines at a maximum 1,200 bit/sec. The lines can take up to 2,000 bit/sec transmission, but the modems in the 3705 controller only operate at the lower speed, Hooper noted.

The 3601 controller can handle up to six loops, but WSFS is using only three of them. At each terminal node in the loops is an IBM 3603 modem to assure continuity back to the CPU.

The system thus far has reduced the cost of handling each individual docu-

ment at the supermarkets by 3.1 cents as a result of direct data capture on the terminals and has also reduced processor costs from 9 cents per item down to 1.5 cents, Robinson noted.

The only major problem in having the terminals installed at supermarkets, Robinson said, was that store officials stipulated that WSFS would have to get other banks to use the same terminals for their customers.

The grocers made these conditions because "none of them want five different terminals in their stores working with five different computer systems" because it would make their tellers' lives difficult, he said.

(Continued on Page 18)

Resale, Sharing of Private-Line Facilities Allowed

WASHINGTON, D.C. — The Federal Communications Commission (FCC) has issued a ruling that will allow private-line users to share or resell their facilities "without restriction or undue discrimination."

In its decision, the FCC said "present tariff restrictions on the resale and sharing of [private-line] services are unjust, unreasonable and unduly discriminatory." The commission gave common carriers until Sept. 1 to file revised tariffs eliminating current restrictions.

Sharing and resale will result in more

efficient use of facilities, cost savings for many small users and innovation in the devices to be used on shared networks, the FCC said.

Commenting on the ruling, Thomas Nurnberger, executive vice-president of AT&T, said "this decision appears to extend resale and sharing into areas where few if any will benefit at the expense of many."

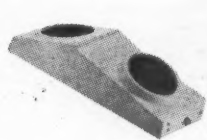
The decision will allow "middlemen" to come between the customer and the telephone company, thus removing the

phone company's "clear-cut responsibility for service," he said.

The decision is expected to benefit smaller users who will now be able to pool their private lines on a shared basis. This type of arrangement apparently will be allowed as long as no user makes a profit from the arrangement, according to one Washington source.

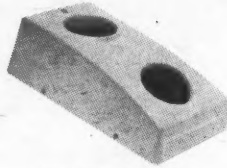
The commission apparently released the full text of its decision to a few selected publications. Representatives of Telenet, Tymshare and other interested firms said they had not seen the full decision.

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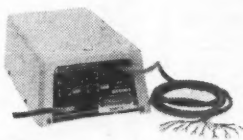
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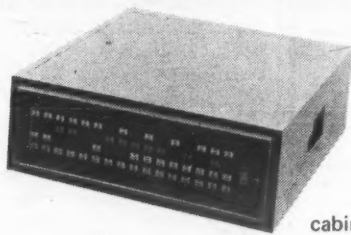
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Net Provides Services for Pharmacists

By John P. Hebert

Of the CW Staff

MELROSE PARK, Ill. — A drug wholesaler based here has launched the first phase of an on-line computer-based retail pharmacy information system which utilizes computer terminals located at stores of subscribers to the system.

The Community Pharmacy System (CPS) aids the pharmacist by carrying out the combined tasks of accessing patient profiles and providing drug label information, prescription pricing and third-party billing — things previously done manually which kept customers waiting, according to Tom Sucher, vice-president of systems development at Applied Health Care Systems, Inc. (AHCS).

A wholly owned subsidiary of Louis Zahn Drug Co., AHCS is presently placing

Bank One Step Away From EFT System

(Continued from Page 17)

The major problem in switching to a fully automatic system, according to Hooper, is the software problems associated with all of IBM's control programs for the network.

As a result, the plan for WSFS' system called for a cooperative effort with other banks once the terminals were installed and proven useful. WSFS is following American Bankers Association standards in implementing the system, he said.

System Made for Sharing

Other area banks came to WSFS when the system was being planned to make sure it would be compatible with their systems, Hooper said. When others use the system, there will be a service charge for use of the terminal.

WSFS designed the system to be shared, he said. As a result it acquired the additional terminal equipment on a six-month purchase option and will be renting it for a year.

"If there is no participation, then we don't know what we will do," he added.

But even if there is participation, WSFS doesn't know how it will set up the final message-switching system to make EFT of customer accounts possible. The plans call for electronic switching to the local service bureau, but there is the problem of which bank would be the switch, Hooper said, adding the bank chosen will charge the other member banks for that service.

"These software problems are new to IBM. They don't know how to answer the questions and solve the problems," he said. "IBM and the telephone company are making a fortune from [the bank's] network."

No Carriers Around

There were no specialized carriers offering communications services in the area, he said, indicating the bank otherwise might have gone with a specialized carrier to reduce costs.

The next move toward a true EFT network, not only for checking account debiting from local supermarkets but also for EFT transactions for mortgage payments, loans, and the bank's Christmas Club, will be the installation of "brand new" IBM equipment, which Hooper said is "the only way to go."

The device, an IBM 3602 communications controller with 5.2M-byte disk packs, will replace the 3601, eliminate some functions of the 3705 and allow the bank to put its customer account files on the unit to reduce CPU overhead, Hooper said.

"We're trying to let the system evolve, rather than putting it all in right now and letting the technology advance to help give us answers to questions," he said.

pilot pharmacies on the computerized system, having only begun operations last January, Sucher said.

CPS is centered around a Data General Corp. C-300 central processor with 96K words of core memory running under Fortran IV application programs. A Data General S-200 CPU serves as a front-end message-switching system comprised of a Data Control Unit and multiplexers, Sucher said.

Information contained in the C-300's data base on 90M-byte disk drives goes out to the drug retailers through ICC/Milgo 2200/24 modems over full-duplex multidrop leased communication lines at 2,400 bit/sec.

At the retail site, pharmacists receive the information on an ICC/Milgo 40+65 CRT and an ICC/Milgo 40+20 line printer after the data has passed through another 2200/24 modem.

AHCS also has ICC/Milgo 3300/36 modems to which the company will eventually move for a transmission speed upgrade to 3,600 bit/sec for customers who need that capability, Sucher said. An upgrade to 4,800 bit/sec transmission is also possible — it would allow more drops to come off the same line and support more throughput in less time, he said.

Simultaneous Use

Each CRT and printer terminal can be independently addressed and polled, Sucher said. Each terminal has a different minor address within the major address of a particular customer so, when the CPU polls the terminals for information, it can go to either the printer or the CRT. This allows simultaneous use of both units, he explained.

All parts of the system except equipment at the customer site have full backup capability to assure system reliability,

he added.

Retail pharmacies who subscribe to CPS do so through a minimum one-year contract. A basic charge of \$375/mo covers the installation and support of the terminals, modems and communication lines, he noted.

Less Waiting Time

The system promises to "drastically reduce" waiting time for both new customers coming in for prescriptions and particularly for customers with information already on file, according to Sucher.

In the latter case, a full information turnaround from time of inquiry to the time of receipt is 15 seconds or less and includes pricing information and prescription label printing, he noted.

If a patient profile (containing the patient's medical history and drug interaction information) is requested by the pharmacist, the total response and printing time is about one minute.

The speed of the printer is either 66 line/min or 125 line/min, he noted.

Initial Problem

During the system's initial implementation, a communications problem cropped up when the asynchronous terminals couldn't get through the synchronous lines to the S-200 message switcher or the CPU.

AHCS installed a "little black box" made by Arc Electronics in Florida which synchronizes the S-200 and the communications system, Sucher said, adding no other major problems were encountered.

While AHCS gets a firm footing with the first phase of CPS, it is planning for future aspects of the system, including offering a similar service to drug stores at nursing homes and at hospital pharmacies, Sucher said.

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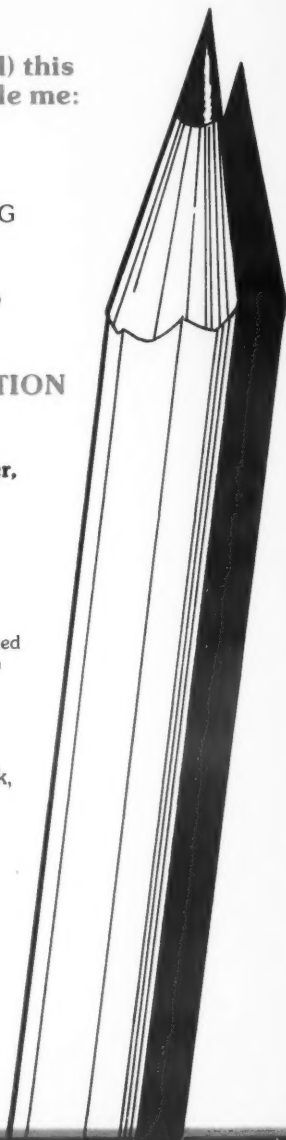
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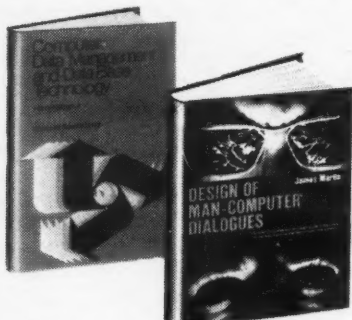
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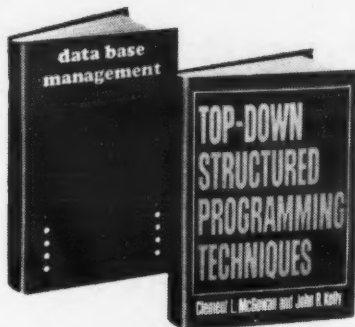
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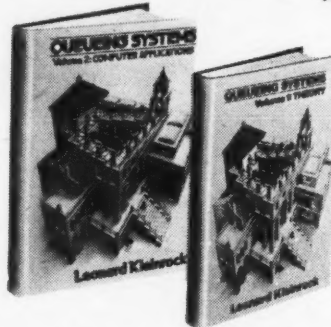
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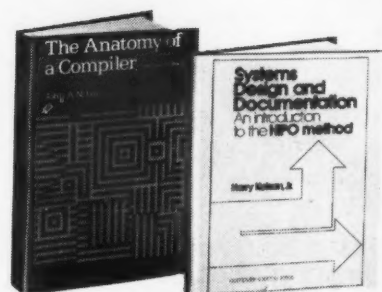
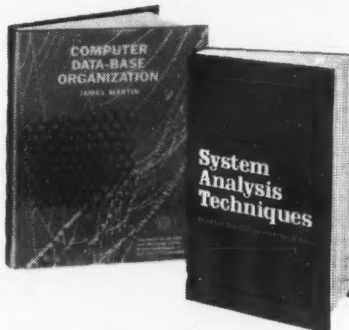
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WUIS Inaugurates Net Processor Series

MAHWAH, N.J. — The System 4100 from Western Union Information Systems (WUIS) marks the beginning of a family of intelligent network processors designed to modularly configure distributed and hierarchical networks.

With the System 4100 network processor, users gain communications features such as dynamic reconfiguration, network performance statistics accumulation and centralized network control, according to a company spokesman.

System 4100 is an intelligent time division multiplexer (TDM) which can accommodate a range of communications interfaces for synchronous and asynchronous terminals, WUIS said.

It reportedly can allow multiple terminals to be multiplexed onto one trunk line operating in point-to-point configurations at throughput rates up to 9,600 bit/sec in each direction simultaneously.

The system terminates synchronous ter-

minal lines with speeds up to 7,200 bit/sec and asynchronous lines with speeds up to 1,200 bit/sec, the company said.

The system is said to be able to handle dial-up or dedicated communications lines in two- or four-wire and half- or full-duplex configurations with current loop, RS-232 or CCITT V.24 terminations.

The networking system can handle up to 20 asynchronous or synchronous lines and can look at up to 64 lines in hard-wired configurations, the spokesman said.

The operator panel in the 4100 unit allows system personnel to monitor the equipment, analyze internal operations, localize hardware and network malfunctions and can also be used to reconfigure the network, WUIS said.

A basic 4100 with 8K of memory, two 1,200 bit/sec asynchronous lines and the system operator panel for diagnostics

costs \$3,620, while a similar system with 20 asynchronous half- or full-duplex lines is priced at \$6,590, the spokesman said.

An optional 4,800- or 9,600 bit/sec modem to work in conjunction with the TDM costs an additional \$6,500; a 20-line TDM system would cost \$13,900, the spokesman said.

A series of products based on the 4000 series has been planned with increased capabilities afforded by dual and triple microprocessor systems that will be able to handle up to 50 kbit/sec transmission speeds for higher throughput, the spokesman said.

The first of these machines will be the System 4200, which can be configured as a complex TDM or as a network concentrator, he said.

Delivery for the 4100 is in 90 days and deliveries for the 4200 are scheduled to begin in the first quarter, WUIS said from 82 McKee Drive, Mahwah, N.J. 07430.

Data Briefs

Bell 208A-Compatible Modem Features Adaptive Equalizer

FORT WASHINGTON, Pa. — A Bell 208A-compatible modem introduced by Tele-Dynamics is said to feature an all-digital adaptive equalizer which affords maximum convergence and prevents drifts and other analog errors.

The Model 7208A 4,800 bit/sec modem provides full-duplex, half-duplex or simplex transmission for point-to-point or multipoint polling operations, according to Tele-Dynamics.

The device has built-in on-line and off-line test capabilities with front panel controls and diagnostic lights as standard features, a spokesman added.

Other features include both common-carrier and terminal loop-back provisions for system troubleshooting, a connector for remote test access and a separate barrier strip for ease in connecting telephone lines, the company said.

The 7208A is priced at \$3,250 with quantity discounts available, Tele-Dynamics said from 525 Virginia Drive, Fort Washington, Pa. 19034.

TDM Handles 72 kBit/Sec Rates

WILTON, Conn. — General Datacomm Industries, Inc. has a time-division multiplexer (TDM) capable of operation up to 72 kbit/sec, the firm said.

The TDM 1205 incorporates up to 14 channels of single or mixed data rates and includes such features as automatic channel alarm, tandem systems diagnostics, automatic maintenance and in-service channel validation, it noted.

The device optimizes multiplexing efficiency through utilization of character interleaving and has the strongest available synchronization system, the company claimed.

It can be configured in multiples at a central location to provide star node operations over an unrestricted number of high-speed lines to remote locations, it said.

Common logic and power is said to be provided individually for each line to preclude multiple city outage resulting from failure.

The TDM 1205 costs \$1,450, General Datacomm said from 131 Danbury Road, Wilton, Conn. 06897.

Sycor Has 2,400 Bit/Sec Modem

ANN ARBOR, Mich. — Sycor, Inc. has a 2,400 bit/sec modem for use with the company's terminal systems.

The LSI modem interfaces with an RS-232 signaling device and produces a Bell 201 B/C-compatible output for transmission over leased or switched lines, Sycor said.

Features include answer-back tone, automatic answering, carrier detect, clear to send delay, local copy, MARK hold on forward channel receive data when carrier is lost and soft carrier turnoff, according to Sycor.

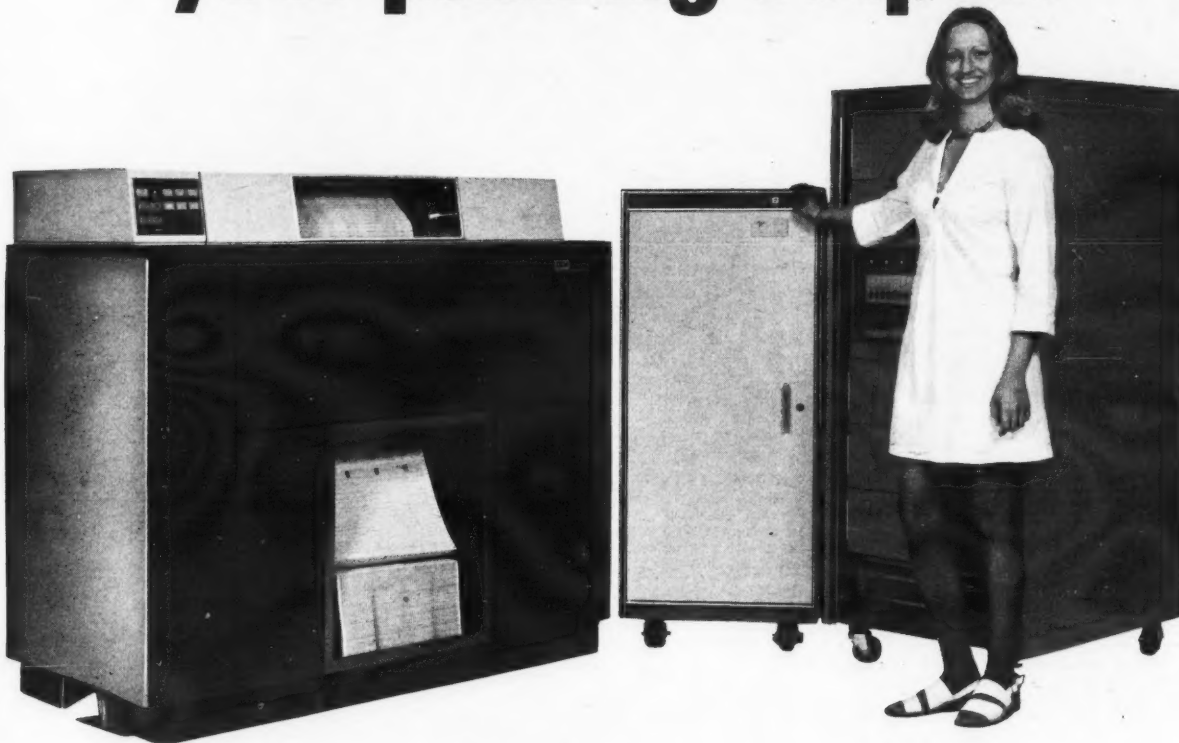
The modem is available in a desktop or wall-mounted housing for the 340/350 and 250 terminal systems. For the Sycor 400 series, the modem is a plug-in module to the control unit.

The unit is priced at \$60/mo on a one-year lease, including maintenance, and carries a purchase price of \$2,000, Sycor said from 100 Phoenix Drive, Ann Arbor, Mich. 48104.

Correction

The Gandalf Data, Inc. standard LDS 309 data set [CW, June 7] is a six-speed device which transmits at speeds of 1,800- to 9,600 bit/sec and costs \$786 with an option adding speeds of 14.4- and 19.2 kbit/sec. The unit sells for \$900

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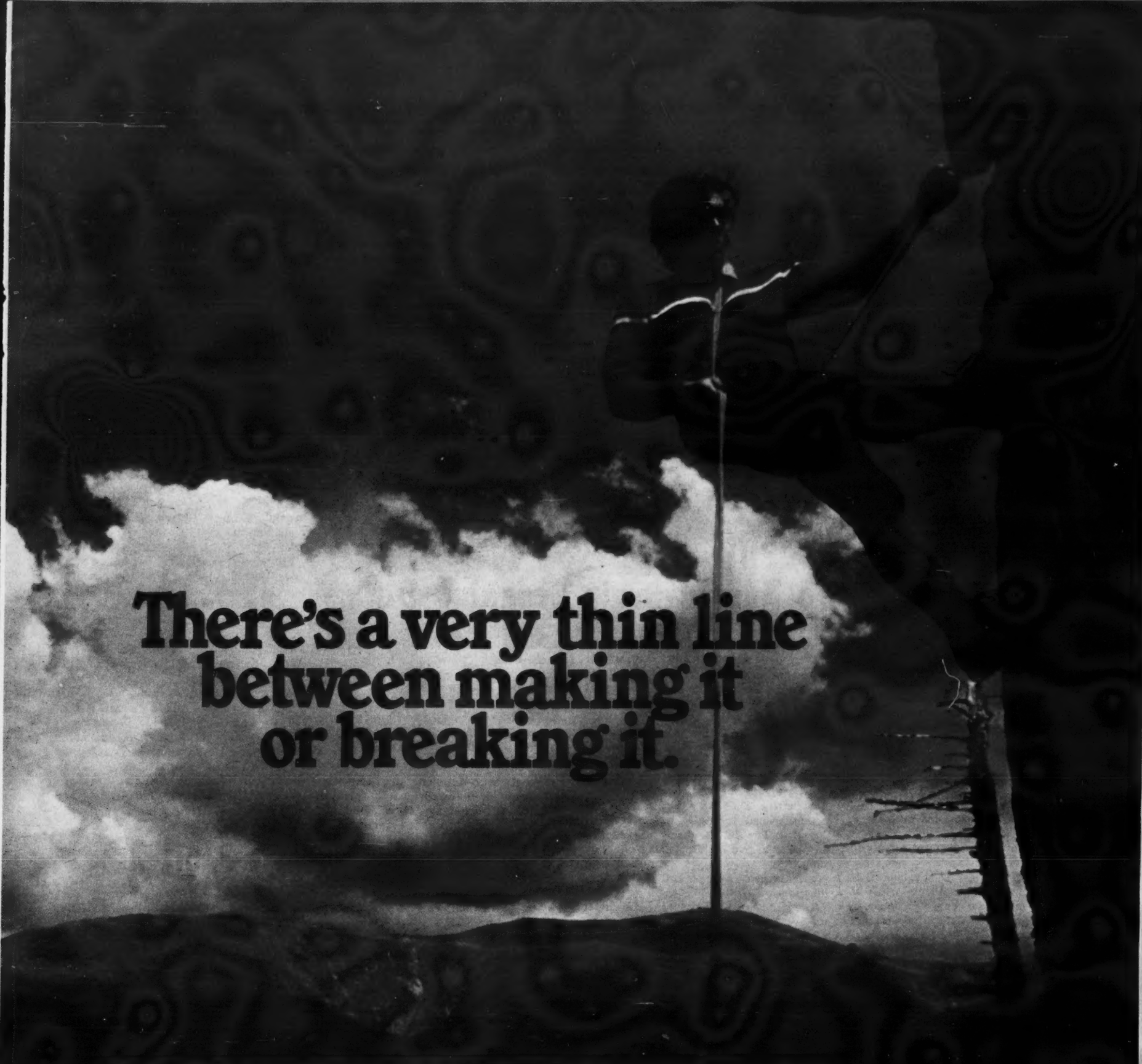
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Bits & Pieces

Cognitronics Adds Diskette As Option on System/70

STAMFORD, Conn. — Cognitronics Corp. has announced the availability of Diskette Unit No. 670 on its System/70 optical character recognition (OCR) equipment.

The optional unit is a removable information storage diskette fully compatible with the diskette in use with the IBM 3740 or 3600 diskette systems.

With this unit, System/70 OCR users can achieve cardless/tapeless data entry to IBM 370 computers, the firm said.

The diskette unit is a complete, self-contained subsystem packaged in a single compact cabinet, housed in the System/70 desk below the CPU unit. A door on the front panel permits easy access to the drive unit for diskette insertion and removal, according to Cognitronics.

The Model 670 disk recording surface is divided into 77 concentric tracks including an index track. Each usable track is subdivided into 26 equal sectors, individual records capable of recording 128 bytes of data, Cognitronics said.

With the maximum number of tracks used, a full disk will contain 1,898 disk records. Users can vary the record lengths and number of sector records per document, according to Cognitronics.

The unit rents for \$190/mo and can be purchased for \$5,950 from Cognitronics at 41 E. 28th St., New York, N.Y. 10028.

Package Trains, Evaluates Operators

NEW YORK — A packaged program on "Keyboard Effectiveness Training" is now available from Advanced Keyboarding Systems (AKS).

The service package was prepared to include fundamental elements while allowing the individual needs of a company to be incorporated into the program, according to the firm.

Package features include the testing and evaluation of each operator for alpha and numeric keyboarding skills, including error patterns and speed, and the compilation of a profile of each operator specifying the training needed to improve productivity, AKS said.

Remedial training, conducted in the company's own production environment, involves two or three operators at a time, rotating throughout the group, so as not to disrupt ongoing production, according to AKS.

The training program is said to be flexible enough to suit any size company. A typical three-week program for up to 12 people costs approximately \$3,750, AKS said from 437 Madison Ave., New York, N.Y. 10022.

Working on Problems, Head Says

Common Adapts to Changing User Base

By Don Leavitt
Of the CW Staff

MONTREAL — As the user group for small IBM systems, Common has some problems as the equipment base changes, "but I'm convinced we're working toward solving them and perhaps setting precedents for Guide and Share," two other IBM users groups, Jim Deck of Inland Steel's Research Labs said here recently.

"We're adapting our program and our organization to meet the real world out there, and both IBM and our membership are responding very nicely," Common's president added in an interview during the group's semiannual conference.

The group is still small — with approximately 420 members across the U.S. and Canada — but 250 or so turned out for

this meeting, which Deck and other Common officials took as a vote of confidence in the way things are going.

Part of the group's problem results from IBM's withdrawal of support for the machines around which Common was formed — the IBM 1130 and the 1800, Deck said. In many respects, the vendor has not come up with truly effective alternatives to these CPUs, he added.

And the users of IBM's current line of small systems — the System 32 and 3 and the 5100 — "simply have a different level of interfacing with their equipment" than the 1130 and 1800 users, so it is hard to find common interests, he said.

But new IBM-based users are the other confusing factor, he added. Other vendors have developed hardware systems that are

directly compatible with IBM's operating systems and applications for the 1130 and 1800 or that can use the software with only minor modification. But these haven't been a disruptive influence, Deck continued.

Common members who have shifted to such non-IBM gear can petition the group's board of directors to retain their status with the potential for working on mutual problems. At the same time, Common has a "no-sales-pitch" policy which locks out vendor representatives except for technical personnel who have been invited to address the group.

Peck saw Common's resolution of this problem as an example Guide or Share might be able to follow in coping with vendors of larger systems such as the Amdahl Corp. 470 "which has to be of legitimate interest" to the large-scale 370 user.

Common's meeting format has changed over time as the needs of the members varied. There is very little "Hey look, this is how I did it," Deck noted. Instead there is a growing emphasis on workshops, seminars and other sessions getting to know specifics about the different types of equipment covered by the group's membership.

Interest in these working sessions has reached the point that Common is now considering putting them "on the road" as stand-alone meetings to be sponsored in various cities around the country, he said. This venture in sharing ideas with users — in or out of Common — may get under way in September, Deck said.

Common is headquartered at 435 N. Michigan Ave., Chicago, Ill. 60611.

Hospital Uses Flexible Disks To Record Brain Scanning Data

HOUSTON — At the Methodist Hospital here, flexible magnetic recording disks are proving to be the most convenient method of recording, storing and displaying patient data gathered by Computerized Axial Tomography (CAT), a new technique for brain scanning.

CAT scanning helps improve the accuracy and speed of doctors' diagnoses by detailing three-dimensional portraits of slices of the human brain from 28,000 X-ray absorption values.

A narrow slit X-ray beam scans the patient's head and emergent photons are detected. The 28,000 absorption readings are made in five minutes, using one-third the X-ray energy of conventional X-ray techniques to obtain 100 times more information.

At Methodist, CAT scanning has largely replaced conventional X-ray filming for use in diagnosing neurological disorders. Marketed flexible recording disks from Memorex Corp. are used to store the absorption readings.

A single flexible disk used for one patient is more convenient than storing many patient records on magnetic recording tape, according to Dr. Robert A. Evans of the radiological department at Methodist.

"By including the random access disk in the patient's X-ray folder, it is possible to retrieve the information immediately without searching a magnetic tape recording of the digital data of scores of patients. The disk can also be reused as soon as the legal responsibility to preserve the medical record of the patient has expired," Evans said.

The absorption readings are stored in

the scanning system's on-line memory. A recording system linked to the scanner transfers each patient's data onto the flexible disk which is then played back in an off-line processor in the radiologist's office.

This off-line processing system contains a microcomputer, full-color screen display unit and an electrostatic printer.

Hard-copy pictures used for conferences and reports to referring physicians are made up of the individual absorption coefficients depicting tissue densities using the off-line processing system.

NCR Key-to-Cassette Unit Bows

DAYTON, Ohio — A numeric-only, key-to-cassette data entry device has been announced by NCR.

The NCR 7218 numeric data entry device is for use with systems such as the NCR 250, 399 and 499 and the NCR Century 8200 minicomputer which use magnetic tape cassettes as input or processing devices, the firm said. The cassettes can also be used with NCR Century mainframe computers and the recently introduced Criterion Series which can be equipped with cassette reading devices.

The microprocessor-based 7218 allows users wide latitude in designing data formats, NCR said. Up to 30 different data fields are available for each application. Data blocks recorded on tape will vary in size from 20 to 256 characters, but will always be the same size for any one application. Each cassette has a total capacity of 312.5K characters, NCR said.

In a typical operation, the data format

is read into the 7218's memory using magnetic tape cassette. Using the numeric key pad and function keys, the operator then enters data. Each entry is printed on a journal tape, providing a complete audit trail, according to the vendor.

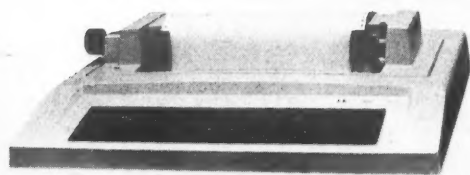
The 7218 has a 16-character keyboard buffer that permits continuous data entry to be time-shared with recording and printing. It can accept up to 10 char./sec and a two-key rollover feature permits the operator to press a second digit key before the first has been completely released.

Included in the 7218 is a built-in, five-function printing calculator with its own auxiliary memory and totaling register.

The standard 7218 has a 14-digit register for storing signed totals. Two additional registers are available as options.

The 7218 will be available for customer delivery in the third quarter with prices beginning at \$2,275, NCR said.

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During Quiet Daytime Hours

Bank Takes Up CPU Slack By Developing County Jobs

CANTON, Ohio — Recognizing nearly all of its DP begins after the day's transactions are completed, Harter Bank and Trust Co. is utilizing its otherwise-quiet daylight hours for the development of a voter registration and jury selection system for Stark County in Ohio under contract from the county commissioners and Board of Elections.

The on-line, real-time system, said to be one of the first of its kind in the country, consists of an IBM 370/145 connected to Memorex 3670 disk drives operating under DOS/VS. Access to data is achieved through the use of CRT terminals located at various points throughout the network.

After being awarded the contract, Harter Bank purchased two of the dual-spindle, 100M byte/spindle Memorex drives to store 170,000 voter files in addition to its own banking records.

In selecting Memorex equip-

ment over the mainframe manufacturer's drives, Philip Morgan, vice-president of computer services for the bank, cited several factors.

"We needed the storage capacity offered by the 3670 equipment, so adding more 2319 drives with only 29M-byte capacity to those already installed was ruled out," Morgan said. "We decided on the 3670s for reliability, performance and

economy considerations."

The on-line registration system, which is scheduled to be ready by the November election, will enable the updating of voter records such as the addition and maintenance of registrations in only minutes.

For a voter registration, the computer system will perform verifying functions such as checking for duplicate names in the voter list, checking for other

voters at the same address, as well as verification of the address.

Once the voter file is built and operational, a system for random selection of jurors will be instituted, which is expected to cut the time required for jury selection to only 100 hours from a current 1,600 hours annually.

The voter registration and jury selection system will use four remote CRT terminals — three at

the Board of Elections and one at the courthouse. A hard-copy printer at the Board of Elections will permit printing of registration cards used by the poll workers.

"We have worked out an arrangement with the board and the county giving them access to the computer at established times," Morgan said. This will allow the bank to perform its own processing requirements.

MDR Mark Reader Made Interactive With Controller

PASADENA, Calif. — The Business Data Products Division of Bell & Howell has introduced an intelligent controller system for use with its MDR series of optical mark readers designed to expand their capabilities from those of simple data entry terminals to those of intelligent interactive terminals.

The controller permits users to enter, edit, format and transmit transaction-oriented data to a host computer using the MDR readers as interactive terminals similar to the IBM 3275.

The controller itself is an adaptation of the microcomputer in Bell & Howell's IMR-80 line of intelligent mark readers. But where the IMR-80 is aimed at batch applications, the Intelligent Mark Document Reader (IMDR) is aimed at the interactive or transaction-oriented world, according to the firm.

The system accepts input in the form of punches, pencil marks, preprinted or computer-generated data and can read, edit and preprocess the information prior to transmission to a host computer.

The controller system gives IMDR users a number of performance options, the firm said. For example, it permits switchable selection of either synchronous or asynchronous communications. It also provides switch-selectable transfer rates.

It will support Teletype-compatible CRT devices or keyboard printers via an output port with switch-selectable current loop or EIA interfacing. A second parallel output is provided for a line printer.

With the installation of an expanded memory board, the IMDR devices can support binary synchronous protocols emulating the IBM 3275.

Lease prices for the IMDR begin at \$250/mo from Bell & Howell at 360 Sierra Madre Villa, Pasadena, Calif. 91109.

A Statement of Our Objectives:

“ ON ”

DP-Based System Makes Locating Police Data a Snap

By Catherine Arnst
Of the CW Staff

LEWIS COUNTY, Wash. — A system that keeps track of arrest records, fingerprints, complaints, mug shots, stolen property reports, firearms permits and other pertinent data "has to be seen in action to really be appreciated," according to an officer of the Sheriff's Office here that is using it.

The Law Enforcement Applications Package (Leap) was installed last December and allows designated personnel working in

Records and Identification to match new information to pertinent data in the files.

The data is stored in a Micro 4000 computer controlled records management system that is interactive with a Recordak Microstar reader/printer. The equipment is supplied by Zytron Data Systems and Eastman Kodak Co.

When an officer is given a partial description of a suspect in a criminal case, he can use a terminal to feed the information into the system, which then

searches for parallels.

"For instance, if a suspect is male; white; about five feet, nine inches tall; and weighs around 200 pounds, we type this information into the terminal, which tells us in seconds how many suspects in our files match that description.

"The data is visually displayed on a CRT screen, which also is used to guide operators through the various steps of search and inquiry," Michael L. Daws, records and identification officer for the sheriff's office, said.

After displaying the number of matching records, the terminal "asks" whether the operator wants to search the computer or the film files for individual persons. In either case, the identification numbers of the appropriate computer records or the film magazines and image location are displayed on the terminal screen.

If the operator searches the microfilm files, the indicated magazine is loaded into the reader/printer. The image number is then transferred from the

computer memory through an interactive teletypewriter terminal to a Recordak image control keyboard linked to the reader/printer, which automatically displays the microimage of the record.

The Sheriff's Office began looking into the use of both microfilm and DP techniques for storing information in mid-1974, Dawes said.

"We had our records, some dating back to 1919, in 34 four-drawer file cabinets, and we were running out of space. Things improved somewhat with the use of a mechanized filing system capable of holding around 20,000 folders in 12 rotating carriers. But, even so, there were still around 10 four-drawer cabinets and we were adding new records every day," he said.

The Sheriff's policy is to keep all arrest records active until the person involved reaches age 50. After that, the file is deactivated only if the person has gone seven years without an arrest.

With the cumbersome files, it sometimes took as long as two days to locate a previous arrest record, Dawes said. There were also times when the information needed to make an identification was in the files, but there wasn't the time or means to find it, he added.

The Lewis County Commissioners agreed in mid-1975 to use around \$100,000 in revenue-sharing funds to initiate Leap.

Codes Assigned

Original documents are recorded onto 16mm microfilm which is processed by Kodak and sent back to the Sheriff's Office. There a seven-digit retrieval code is assigned to each document image. The first three digits identify the film magazine and the next four the image location.

Dawes started microfilming arrest records in September 1975, three months before the Micro 4000 was installed. Complaints, stolen property records and firearm permits were added in June.

Mug shots and fingerprints will be microfilmed this month and separate magazine files will be kept for each. Folders will also be kept containing the mug shots and fingerprints of all persons in the active files. The mechanized file, which is kept adjacent to the computer-assisted retrieval (CAR) equipment, is used for this.

"We use the CAR equipment to narrow a search for a suspect down to five or six people," Dawes said. "All we have to do is load the magazine containing all the mug shots into the reader/printer and key in the characteristics of the suspects. The mug shots can be viewed either up in the 14 by 14-in. screen or, if there is a larger group, a bigger picture can be projected."

There is a built-in safeguard against damage to the disk memory. "At the end of each day, we transfer all new activity onto magnetic tape as a backup. The same is done at the end of each week and month.

"Even if something should happen to the disk memory, we have almost total backup. The only thing that would have to be recompiled is the day's activities," Dawes said.

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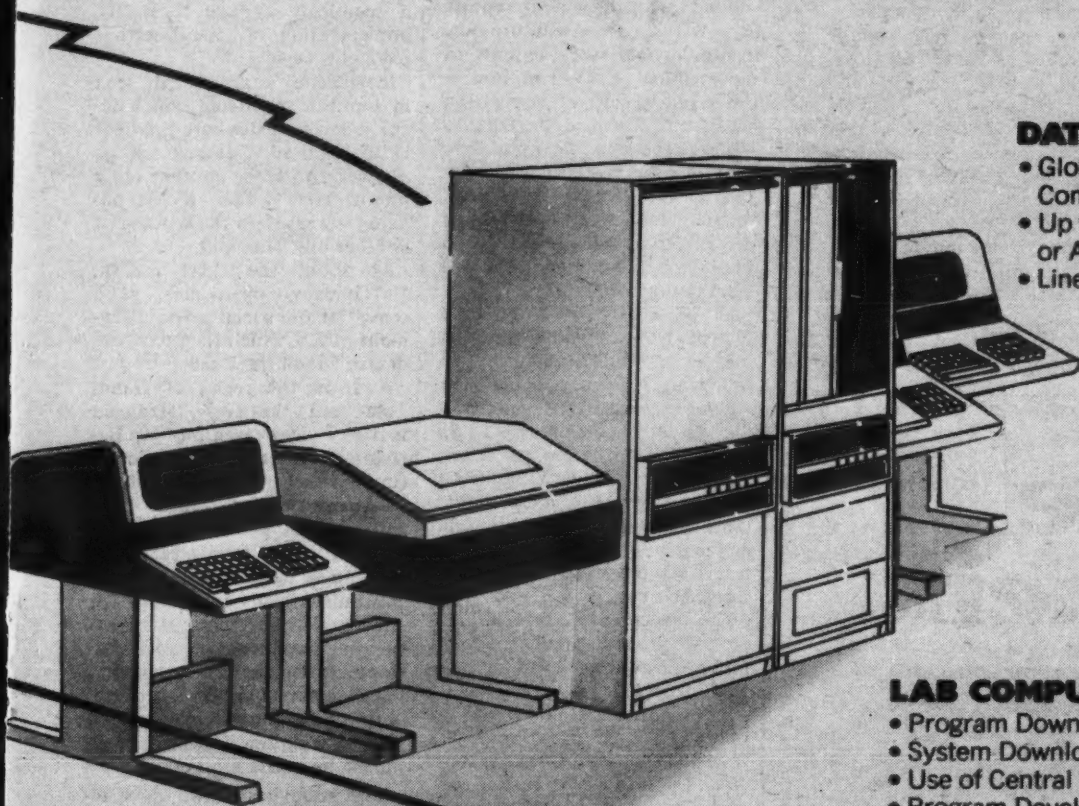
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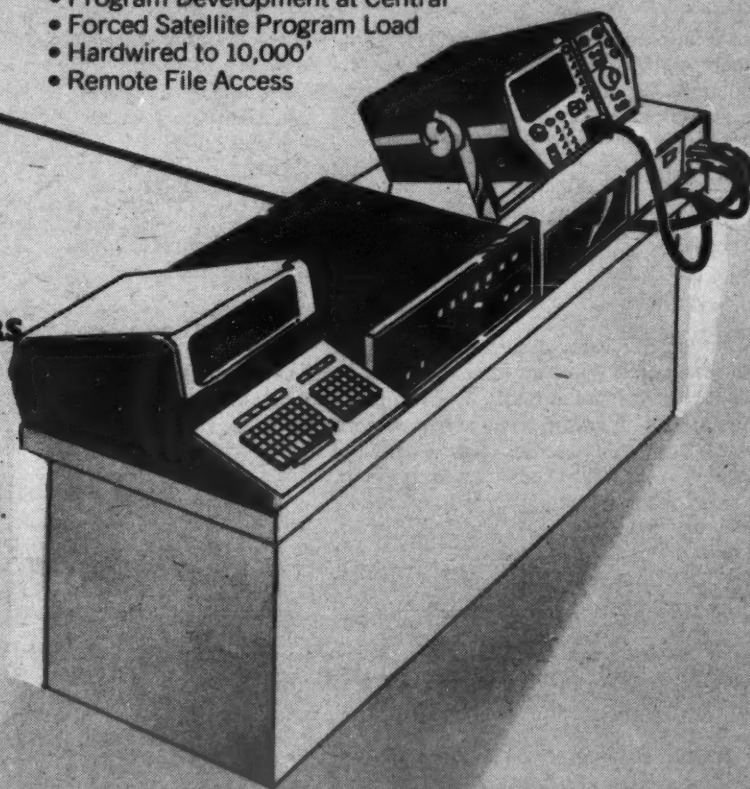
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N.Y. Social Services System Predicted To Save \$300 Million in First Year

By John P. Hebert
Of the CW Staff

ALBANY, N.Y. — The state of New York is making what the commissioner of social services feels is a safe bet in implementing a welfare and Medicaid management information system.

It is waiting for executive approval of state funding appropriations of about \$3.5 million for computer-based welfare management and Medicaid management information systems.

The state funds should be matched by the Federal government, making an \$11 million-plus grand total available to clean up the state's mammoth social service payment system, according to Philip Toia, head of the Department of Social Services.

The systems should prove to be instrumental in turning the tide on widespread welfare payment inefficiency, abuse and fraud to the tune of about \$1 million/day in savings during the first year of

operation, Toia said.

Sworn in as social service commissioner early last month, Toia said recently he is confident Gov. Hugh Carey will give the go-ahead on bills passed by the state legislature appropriating the necessary funding that will clear the way for a centralized computer and telecommunications system serving CRT terminals to be located in each of the state's 58 counties.

Based on management reports of how the system will turn out, it should help save the state in the vicinity of \$300 million in the first year of operation because of reduced payouts to welfare recipients, Toia said.

"It will be cost-effective even at the most pessimistic effort," he predicted, saying even a small percentage of savings of the total \$5 billion annual program will yield impressive figures.

At present, "we don't have systems to track people through the social service system," — to follow up on abuses, Toia said.

The state will build edits into the system on the Medicaid side to control instances of fraud, especially in New York City, where its scope is much larger than the rest of the state in dollar amounts, but smaller in terms of the number of fraud cases, he noted.

The pieces of the \$11 million pie will go substantially for computer hardware, including centrally located mainframes and CRT terminals in social service offices of each state county and for a telecommunications system to tie them to a central site, Toia said.

Extensive Planning

Extensive planning has resulted in a proposed welfare management system with a central eligibility file, which will be implemented in upstate New York first, he said.

A second portion of the total system will initially provide New York City — and the remainder of the state thereafter — with a Medicaid management information system (MMIS).

Hopes are the city will begin paying bills with the system in the next 15 to 18 months, according to Toia.

Much of the money appropriated will be used to convert the state's existing largely manual system; another portion will support an additional 200-person

staff to run the system at both the state and county levels; and some of the money will be used to pick up some of the county costs associated with administering the programs, he said.

"New York is the only large industrial state in the nation without a centralized [social services] payment system," Toia said.

Because of this, the depth and scope of inefficiency and fraud is seemingly enough to justify implementing a computerized payments system.

Inefficiency is most easily seen in duplicate payments, which occur when a health care provider is not paid soon enough for his services and sends another bill a month later which, if left unpaid, will result in the sending of another bill, Toia said.

At about the third month, "efficiency overcomes good sense" at the social services payment office, which then pays the doctor for all three bills.

And, in the realm of fraud, Toia said the two "Medicaid mills" — representing white-collar crime at its most colorful (in terminology), yet equally as disastrous to the welfare budget — are the practices of "ping-ponging" and "family ganging."

The new system, with its various built-in edits, should prevent doctors' practices of ping-ponging patients from doctor to doctor when there is no need to do so by tracking the over-utilization of care and patterns of abuse by certain health care providers, he said.

The state has drawn up a request for proposal (RFP) for competitive bids on the system, which is "just about ready to go," Toia said.

Because New York has "learned from the experiences of the other big states," he predicted it will have the best system in the nation by the time it is done in four or five years.

Part of this planning included going outside the confines of government for key personnel to give the system a mix of public and private experience behind it.

"I need the innovators now and I'll get the implementors later," he said. Toia has received 400 responses from ads in the *New York Times* and *Washington Post* for job positions, and 15% of the responses were from top-notch people."

Putting the minis in their proper places.

Read Minicomputers and Small Business Systems in the August 30th Computerworld.

The minicomputer market is bullish and booming. Minicomputer shipments will reach approximately \$1.3 billion in the U.S. this year — nearly triple the value of units shipped in 1973 (Source: International Data Corporation, the world's largest EDP market research firm). The fundamental reason for this rapid growth is the mini's declining cost, which has given rise to a wider and wider variety of uses for these versatile machines. Once a creature of the laboratory and scientific environment, minis can now be found doing everything from on-line network control to functioning as CPU's for complete small business systems (many of which are found in very large businesses, as the idea of distributed data processing begins to take hold).

In our August 30th supplement, edited by Esther Surden, we'll be taking an in-depth look at minicomputers and small business systems. Using application stories and tutorials, we'll examine how minicomputers function in distributed processing environments. We'll also have a survey of distributed processing: who uses it, what it is, and where it's headed. We'll analyze current trends in minicomputer development and discuss what the "superminis" have to offer. We'll also present a variety of stories on small business and turnkey systems. We'll examine the different types of systems available, the hardware and software features they offer, and look at how costs compare with benefits for some first-time users converting to a small business system.

Whether you're a giant professional computer site, or one of the smallest first-time users, this report will have important information for you. It's in the August 30th *Computerworld*. If you're a minicomputer manufacturer, a systems house specializing in minicomputer enhancements, or a small business system vendor, you should advertise here. Contact your *Computerworld* salesman to reserve your space. Or call Judy Milford at (617) 965-5800.



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'Why' Questions Key to Discovering Reserve Capacity

By Edward A. Olmstead
Special to Computerworld

Most data centers — even when fully loaded — have a large reserve capacity.

The reserve capacity may not be obvious. It may not even be measurable by any of the computer performance measurement tools — but it is there nonetheless. There is a simple key to finding that reserve capacity and putting it to use.

The same simple key may give a current system added life before a hardware upgrade, give a user access to the capacity he needs for critical development work and allow him to reduce the use of outside services or even reduce the hardware budget.

The key to finding and using the reserve computer capacity is not found in hardware or software monitors.

The key that must be used consists of three simple letters — W-H-Y.

"Why" is best used to start a sentence in the nature of: "why does that; why doesn't that; why do we pay for; why can't we?"

Sample Uses of "Why..."

Here are some samples of the "Why?" method:

- Why should an IBM 370/145 have 128K of memory added to teleprocessing?

The answer is that it should not. But there is a problem on the tape channel and the applications need adjustments.

This answer required two months and a computer hardware monitoring study. But the core still has not been added after three years; the system performance improved; and the DP manager knows what his real limiting factors are now.

- Why should this application justify having two drum units when there are no other users for the drums?

The answer is there is no need; it's just always been run that way because the designers thought drums would be needed.

Parallel tests did show an extension of run time of 4%. But that is a small price considering the savings of \$75,000/year for the past five years since the drums were shipped back to the vendor.

- Why are we paying for these software products?

Well, it seemed someone once thought they would be nice to have around just in case we wanted them... but that was three years, and \$18,000, ago and they have not been used yet.

An Old-Fashioned Attitude

Granny used to say "... use it up, wear it out, make it do or do without."

That is pretty hard-core stuff today, not the kind of thinking you will hear from your friendly computer vendor on his next sales call.

This is not an attitude for all times since there have been a few significant improvements in the machines. But you can get a lot more utility out of your current computer for day-to-day work. Just don't be the owner of the last IBM 704; next to last maybe, but not the last one.

Basically, the organization pays someone a lot of money for the

computer. It is the user's job to make certain the money is well spent.

That means the user does not stand still for a lot of expensive frills (now called overhead or systems functions) unless there is a good reason for having them around. Nor does he ever accept "We have always done things this way" as a final answer, even if some people feel threatened by the questions.

Now then, once a user has cleaned up his act and developed a reputation as a "Super

Scrooge" who asks some pretty tough questions, what next?

When a user has done all that, he can find and use the reserve capacity of the computer center with the tools at hand. He should then take the next step — ask "Why should I use... a hardware monitor? A software monitor? A simulation system?"

This means the user will have to know what the questions are he cannot answer using the tools at hand, and he needs to make intelligent guesses as to how

much benefit he will get from those answers.

Then he should set up a plan for measurement of his reserve capacity. And put that plan through the same tough test of "why" that he used on the computer.

When he has gone through the process of finding and using the real reserve capacity of the computer system, he will see that:

- Equipment upgrade can probably be delayed.
- Some of the "essential" parts of the hardware are really

excess.

- The programmers and analysts now design for performance.

- The user community sees him in a new light.

- The next DP budget will be easier to get approved.

- And last, but not least, he will know he is doing the best job he can do with the resources he is managing for his organization.

Olmstead is a consultant with Compass Management Group in Bellevue, Wash.

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And if you're an OEM, you'll like the way the IMSAI 8080 is put together. Switches are large and rugged, and the front panel, with hexadecimal and octal notation, has an extra eight program controlled LED's.

The intelligent floppy disk interface/controller has its own processor and firmware. It provides sophisticated control of the floppy disk system with DMA and automatic retry. And this economical interface/controller can handle up to four drives. Each disk stores up to 243K bytes using the IBM 3740 format and has an average access time of 330 milliseconds.

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Mini Bits

IEEE Seminar to Discuss Micro Design, Applications

PISCATAWAY, N.J. — A five-day course in microcomputer design and applications with "hands-on" experience will be offered by the Institute of Electrical and Electronics Engineers (IEEE) Sept. 27 through Oct. 1.

The sessions will be held in Atlanta, Ga. The course is intended for active design, applications and manufacturing engineers, who are well versed in the development of digital electronics at the chip interface level, IEEE said.

It should bring the experienced engineer up-to-date in the architecture, programming, systems design, applications and marketing economics of microprocessor technology through lectures and unique laboratory projects using an 8-bit microcomputer, the organization said.

The registration fees are \$300 for IEEE members, \$100 for IEEE student members and \$375 for nonmembers. Information is available from the educational registrar at IEEE at 445 Hoes Lane, Piscataway, N.J. 08854.

Tycom Gives Hard Copy for 5100

FAIRFIELD, N.J. — The Tycom Systems Corp. 5100 provides IBM 5100 users with hard-copy output, upper/lower case characters and up to 156 character-print positions, the firm said.

The unit interfaces to the IBM Selectric II and provides letter-quality printout for final reports and presentations, Tycom said.

Typical applications include word processing, accounting and billing, payroll, manuals, contracts and proposals, the firm said.

The Tycom 5100 costs \$2,495 without the Selectric from the firm at 26 Just Road, Fairfield, N.J. 07006.

Infotek Adds Floppy Disk

COVINA, Calif. — Infotek Systems has introduced a floppy disk for the Hewlett-Packard (HP) 9830A scientific calculator.

Called the FD-30, Infotek's floppy disk emulates the 9830 cassette system so no changes in existing software are required, the firm said. The cassette control commands and syntax of the 9830 are obeyed and all such programs operate without modification, a spokesman noted.

The unit is 4 in. high and fits between the calculator and printer, he added.

The FD-30 floppy disk costs \$3,895 from Infotek Systems at 733 East Edna Place, Covina, Calif. 91723.

Overtime Drops \$30,000/Year

Baking Company Saves Dough With Mini

By Esther Surden
Of the CW Staff

SAN DIEGO — A wholesale bakery here has successfully converted from an IBM 3 to a Digital Equipment Corp. Datasystem 500 and is realizing a \$30,000/year savings in overtime costs, the user said.

The company, Town Talk Baking, had been using the 3 for about three years before it "occurred to us it might not have the best system for the money," according to Jim Smith, the firm's DP manager.

When management felt consideration must be given to on-line time-sharing systems because it no longer wanted to be

"locked into a batch-oriented environment," Town Talk looked at systems from Martin Wolfe, Microdata Corp., Basic Four Corp. and DEC.

The firm chose the DEC system because "the price/performance ratio was very attractive" Smith said. The system could also perform multiple jobs simultaneously and allow the DP department to expand its applications.

The configuration chosen by Town Talk has been expanded since its selection a year ago. It now includes a PDP-11/40 processor with 160K of core memory, two cartridge disk drives and 20M bytes

of additional disk, three CRTs, two Decwriters and a 16-port multiplexer.

The total hardware investment was about \$130,000, according to Smith.

Rewrote Programs

It took Smith about six months to convert from the 3, rewriting the programs to suit the new equipment, he said. The two systems ran in parallel for several months before the DEC system was ready to go it alone, he added.

The programs written by Smith are designed for a bakery's particular operating methods.

Salesmen receive computer printouts daily based on route sales for the same day of the week before. If the salesman makes no changes, the order is repeated for the new week.

Orders can be altered up to 9 a.m. on production day; all changes called in by salesmen are entered directly into the system via the CRTs.

The system adds all order quantities in each product code, translates quantities into dough weight and relates the codes to 20 dough formulas stored on disk.

The mini also figures the total batch weight of each type of dough needed for the day's orders, and final bake orders are ready within 15 minutes.

After transmitting the final bake order, (Continued on Page 32)

General Contractor Uses CPU To Improve Cost Estimating

KINGSPORT, Tenn. — A general contractor here is using a small business system to improve its cost-estimating procedures.

The IBM System 32 was installed at Rentenbach and Wright, Inc. last August. Rentenbach and Wright operates in a four-state area, designing and erecting a range of industrial and commercial buildings.

Before going with IBM, the firm looked at systems from NCR and Burroughs, according to Frank Brewer, the company's president. IBM was chosen because "we felt it had the best programming and best support for the system, both maintenance and software," he said.

The configuration includes the System 32 with 9.1M bytes of disk and a 100 line/min printer. It is being leased for about \$1,400/mo, Brewer said.

"The system has enabled us to effectively manage an enormous increase in business without increasing management personnel," he said.

"And, he added, "it has assisted in building our clients' confidence in how we handle their business."

Most of the firm's business comes from negotiated contracts rather than bidding situations, Brewer pointed out. "We believe the detail and accuracy of our computerized cost-estimating program helps build credibility with our customers because we can deal in actual figures," he said.

Special Concrete Program

A unique concrete estimating program written under contract by IBM allows the estimator to feed certain variables about a job into the computer.

"The price of concrete may vary from \$24 to \$40 per cubic yard depending on

the location," Brewer noted.

Using this input along with job cost data stored in the system, the mini calculates the size of the footing, excavating requirements, materials costs and labor costs for the job.

"Instead of a single cost item for concrete, we get detailed costs of the slab, walls, sidewalks, steel mesh and even backfill," Brewer said. "When a customer (Continued on Page 31)

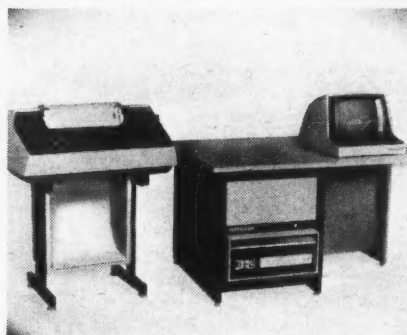
Lockheed Has Three Systems For Small Business Users

LOS ANGELES — A programmable small business system, a turnkey general-purpose system and a minicomputer dedicated to insurance agency and brokerage accounting were introduced by Lockheed Electronics Co., Inc.'s Data Products Division.

The Lockheed System II is a desk-sized system including the firm's System User Engineered (SUE) CPU, 5M bytes of disk, a 1,920-char. CRT, keyboard, printer and software.

Two versions of the System II are available, Lockheed said. Model 1 is a turnkey system with 16K of memory dedicated to payroll, taxes, accounts payable and receivable, purchase and order entry, inventory and general ledger applications. Model 2 is a user-programmable system with 32K bytes of memory.

The Servus 80 is the System II with a package to allow a broker or agent to prepare premium notices, monthly statements, client policy/ledger inquiries, accounts and commission statements, sales



Lockheed System II

analysis, expiration listings and aged receivable trial balances, the firm said.

The turnkey system with 16K of memory costs \$21,950; Model 2, with 32K of memory costs \$26,075. Models of the Servus 80 cost the same as the models 1 and 2, the firm noted.

Lockheed is at 6201 East Randolph St., Los Angeles, Calif. 90040.



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Growth Convinces Photo Equipment Firm to Buy Mini

CARLSTADT, N.J. — A photographic equipment distributor here is pleased with a small business system's ability to handle his firm's growth.

Argraph Corp. purchased a small system in 1973 after growth made the firm a \$5 million/year earner, according to John J. Roth, president.

Originally the company's billing was handled by an accounting machine with all additional functions done by hand.

After purchasing a Basic/Four Corp. small business computer in October 1973, the firm automated its handling of order

entry, invoicing, inventory control, accounts receivable and cash receipts.

It then expanded the system to incorporate general ledger.

Growth prodded Argraph into purchasing a minicomputer. Management felt the need for more information and on a more timely basis.

"We hired a qualified computer consultant to research the field for us and decided on the system for several reasons. We were able to continue our existing operations in the format most familiar to our employees. The system was able to

expand into other information reports. And we could do this without complicated programming requirements."

The system consists of a Model 400 central processor with 32K bytes of core memory, a disk drive with 4.2M bytes of storage, two CRTs and a medium-speed printer.

More Reports Feasible

The warehouseman, Pat Petrocelli got involved in programming, making changes and writing new reports which previously hadn't been available.

A major benefit of the computerized system has been its ability to generate new, useful reports which weren't feasible with a manual operation, he said.

"We are constantly expanding our applications to provide us with information

basic to our marketing activities," Roth explained. "We began with simple order entry, invoicing, inventory control of some 3,000 items at three locations, accounts receivable and cash receipts.

"We then expanded these applications for the adjunct programs, including sales reports by salesman, territory and customer. From the order entry system we developed a packers report which keeps us informed on the productivity of the shipping department. Afterwards, all this data is expanded to provide salesman's commission reports."

Quite apart from its marketing operations, Argraph has found the minicomputer useful in overall business activities. General ledger, previously done manually, is being handled by the system and takes about 10 days less than before.

Diskette Memory Fits LSI-11

BERKELEY, Calif. — The DSD 210 diskette memory system from Data Systems Design is a Digital Equipment Corp. LSI-11-compatible floppy disk system, according to the vendor.

The unit is IBM 3740 format-compatible; diskette formatting and write protect are standard features, it noted.

Data transfers, data error checks and read/write head positioning are controlled by an 8-bit microprocessor.

The DSD 210 costs \$2,795 from Data

Systems Design at 1122 University Ave., Berkeley, Calif. 94702.

Contractor's CPU Improves Estimates

(Continued from Page 30)

sees this kind of detail, he knows we're not guessing at the cost of a project.

"The computer can estimate the cost of the project in about 30 seconds, while we used to take two to three hours to do the same job manually. We can get cost figures on up to 150 separate items in the major category of concrete work alone.

"That kind of detail allows us to carefully adjust unit prices as items change and helps us manage a project for profitability. We can tell when a segment of the job is running into trouble before it is too late to correct it.

"It gives our field force a vital management tool," he concluded.

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Micro Kits Seen Spurring Interest in DP as Hobby

By Toni Wiseman
Of the CW Staff

NEW YORK — "Microcomputer kits have changed the build-it-yourself hobby dramatically," Stephen B. Gray, president of the Amateur Computer Society, said here recently.

Until the introduction of such kits some two years ago, only about two dozen amateur computers of any real complexity were in operation, nearly all of which had been built from scratch by engineers in the computer industry, Gray said.

A show of hands among the attendees at the National Computer Conference (NCC) session revealed he was addressing some 25 to 30 who had personal computers operating in their homes, however.

And, while there were only two dozen "hobby" systems operating two years ago, today there are two dozen different microcomputer kits available, based on a

half dozen different microprocessors, Gray said. Some 7,000 of these kits have already been sold, he noted.

Micro kits may be popular, Gray said, but many computer hobbyists are still building machines to their own design or copying a commercial machine or operating and/or rebuilding obsolete computers.

Formidable Drawbacks

"Vacuum-tube computers are occasionally available, but most of the drawbacks in using them are formidable: many are so large a barn is required to store them; they need a great deal of air conditioning and electrical power, and tubes can be expensive to replace," he noted.

To get these computers working, schematics are essential, and they are almost never available, he said. This leaves the hobbyist with two options: to take months or years to trace out every con-

nection or to rewire most or all of the machine.

Despite all the problems, many computer enthusiasts are still operating an old computer or trying to get one into shape, Gray said.

Other hobbyists are building their computers from scratch, eschewing kits or ready-made machines.

The problem in building a computer from scratch without resorting to a microprocessor is that so many areas of specialization are involved, he said, ranging from logic, input/output, memory and peripherals to mechanical skills such as packaging, back-panel wiring, metal working and many others, he said.

While starting from scratch does not pose great problems for an engineer, for the beginner the problems of designing a circuit or connecting the various portions of the computer can be real obstacles, he said.

"Even supposing an amateur computer builder did get hold of complete schematics and all the parts, the one big stumbling block that has thrown many is core memory," Gray said.

"It is still expensive to buy when new, and when surplus it may contain broken cores, or perhaps it's surplus because it couldn't pass the manufacturer's quality control.

"Getting a core memory to work still separates the men from the boys, if there are still any who want to try it, now that semiconductor memory is so readily available and so cheap," he said.

Gray cited several examples of computer engineers who had designed their own machines, such as one who had assembled a preintegrated circuit machine which took him a year to build and which he expects to spend 10 years programming.

Amateurs wanting to make things easier for themselves by copying have two choices, according to Gray. The can either obtain the schematics of their favorite machine and try to duplicate it or they can build a machine of their own design that will use the instruction set of a commercial machine, such as the Digital Equipment Corp. PDP-8.

Book Guides Users Through Micro Arena

ORANGE, N.J. — D.A.T.A., Inc.'s Microcomputer D.A.T.A. Book is said to tell the user everything he wanted to know about the microcomputer arena but was afraid to ask.

Included in this 260-page reference guide is information about 100 microcomputers, 100 microprocessors and 1,000 related memory and I/O devices, according to D.A.T.A.

Users can find the electrical characteristics, software support and instruction set information for the micros by knowing the system, microprocessor, memory or interface type number, the company said. The user can tell the level of involvement of a particular manufacturer in the microcomputer industry by consulting a special table, the company noted.

General terms and definitions relating to micros and addresses of all the indexed manufacturers are included in the book. D.A.T.A. is located at 32 Lincoln Ave., Orange, N.J. 07050.

Baking Firm Saves Dough by Using Mini

(Continued from Page 30)

the mini reproceses the information and prints a load sheet for each route. The sheet details loading quantities, dollar values for each product category, total load value (for the salesman) and leaves space for the loader to make adjustments. Route loads are recapped by the distribution center before transports, which supply four delivery depots, are loaded.

Load adjustments and salesman's stale return figures are entered into the computer on a second video terminal. The system converts the data into dollars and cents, processes those figures against the load value and prints out a settlement sheet that tallies the amount the salesman owes.

An offshoot of the daily bake order is generation of analytical reports to assist management in sales and production. The system provides the production department with a daily dough report, compares actual production with distribution and indicates discrepancies, helps control the flour inventory and accuracy of dough scaling. Also detailed are route sales by area, sales to naval ships and shore stations and to other wholesale bakeries.

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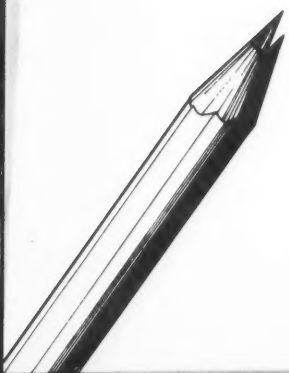
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CIRCULATION DEPARTMENT

Although Vendors Unclear About Limits

Lower Costs, Flexibility Seen Advantages of Single Bus

By Molly Upton
Of the CW Staff

The search for flexible, inexpensive machines has led an increasing number of manufacturers to adopt single-bus architecture, interviews with a number of vendors recently found.

Although there are distinct advantages which were universally extolled by those surveyed, the disadvantages and limitations are less clear.

Some concede there are throughput limitations inherent in such a design; others maintained there are means of extending the capabilities of a single-bus design.

Digital Equipment Corp. pioneered the single-bus concept with the Omnibus on its PDP-8/E and then later inaugurated the Unibus on the PDP-11 series.

Honeywell Information Systems (HIS) last winter came out with the Level 6 series of minis

and NCR Corp. and Harris Corp. more recently introduced the Criterion and Slash 6 respectively, all of which also use single-bus architecture.

While all of the product managers or engineers of these firms praised the single-bus concept for its modularity, flexibility and cost effectiveness, they were not as consistent in enumerating the design's limitations.

All indicated the concept of a single bus, in which slots can accommodate either I/O or memory devices, will continue to be in use even if a system expands to the point where separate buses are necessary.

The most important advantages of using a single bus are inexpensive mechanical and electrical packaging and cable length, according to Tom Orr, senior engineer at DEC.

Small packaging is made possible by use of minimal amounts of wiring, cable and electronics

to send and receive signals, he said.

Economics Favor Concept

Michael Simon, manager of hardware planning for HIS' Boston computer operations, explained the economic aspects.

Four or five years ago, the single-bus design was not as cost-effective as it is today, he said, because circuit costs were high. The single bus has a higher circuit cost per port because every slot can be either memory or peripherals, he said.

"So there are more circuits per interface. But the circuit costs are so small now and the flexibility gained is so much more valuable, HIS chose to go that way.

The HIS 716 and older minis used two buses because the circuit costs were far more important then," he observed.

"The single-bus design gives a broad capability to design for

various applications with the fewest number of building blocks," Simon said.

"It's really a question of satisfying as many people as possible with a single bus, and then when you get to high performance, where the cost can be justified, you use the single bus as the right-hand one and add the memory bus on the other side," he said.

Biggest Drawback

But the biggest drawback to a single bus is that it cannot be used on very high-speed or very powerful CPUs, DEC's Orr said.

In a radial bus structure, where every device has its own cable, there is no throughput problem since the machine is not bandwidth-limited, he explained.

However, in single-bus architecture, everything is on the same piece of wire and this means taking turns. So the CPU has to arbitrate whose turn it is to use

the bus, he said.

"The drawbacks are that you are throughput- and bandwidth-limited because everything has to take its turn, plus the sophisticated logic needed to control mastership of the bus," Orr added.

It is a "seat-of-the-pants" decision as to when the bus will be overloaded, he noted.

"You design something and all of a sudden you decide, 'Gee, that thing's running terribly slow.'"

"You get to a point where you design so much power into a CPU that you can't take advantage of it because the bus won't allow it to go fast enough to the point where you designed it," Orr said. "That's when you add extra buses."

The larger PDP-11/45s and the PDP-11/70s incorporate specialized memory and mass storage buses in addition to the Unibus, (Continued on Page 36)

Suit Charges IBM 'Slander' Caused Demise of Firm

By Molly Upton
Of the CW Staff

LAS VEGAS — Slander. That's essentially one of the charges filed against IBM in a \$25.5 million amended suit brought by a defunct service bureau, Royal Data, Inc.

The suit, filed in federal district court here, alleged IBM employees spread the word Royal Data was linked with the Mafia and it was therefore driven out of business.

The suit charges business defamation as well as trespassing and unfair competition.

More than 1,000 pages of pretrial depositions include descriptions of Royal Data's attempts to sell its services, only to be rejected since word has it the firm's connections were nefarious, according to the *Wall Street Journal*. The depositors have been sealed, as is that court's custom.

"The law suit stems from IBM's repossession in February of 1973 of equipment leased to Royal Data, but on which Royal Data had not paid rent for five months," an IBM spokesman said.

"Royal Data reacted to that

repossession by immediately filing suit alleging IBM had unlawfully trespassed and had damaged Royal Data's system by throwing an emergency power switch," he said.

"It was not until two years later that Royal Data amended its complaint to allege defamation by IBM employees. Like the trespass claim, that charge is totally without merit and we are confident that IBM will prevail on both," the spokesman said.

IBM has countersued Royal Data for \$48,000 it claims the firm owes it.

Founded as Casino Service

Royal Data, founded by John Perazzo Jr. of New York, was established in 1971 to provide a computer credit-checking service for Las Vegas casinos as well as billing, payroll and profitability analyses.

Of the firm's initial \$275,000 capitalization, \$175,000 came from Perazzo's father and \$100,000 from a long-time associate, according to the *Wall Street Journal* account.

IBM at that time was in the service bureau business through its subsidiary, Service Bureau Corp.,

which was acquired by Control Data Corp. in 1973.

Royal Data was active for seven months, accumulating revenues of \$36,000.

Royal initially leased a 360/40 from IBM, Perazzo said, because he had the "highest regard" for the firm and its service from his experience in New York.

The firm experienced "a conglomeration of problems" with IBM which, he said, had been trying to enlist casinos as customers. Perazzo felt it was "fruitless to stay with IBM."

On Aug. 30, Royal cancelled the 360/40 from IBM and from September to November changed over to a 360/40 leased from Boothe Computer, Inc., he said. Royal Data also tried to procure service from a third party.

IBMs Turned Off Power

Along with the Boothe CPU came Courier terminals because IBM at the last minute notified him there would be a two-month delay in delivery of the CRTs he had ordered, Perazzo said.

The principal piece of IBM gear on the premises when about 10 IBMs entered the DP center and threw the emergency switch

while the system was up and on-line was a 2701, from which they pulled some cards, Perazzo said.

Royal was unable to get the system back up, and closed its doors, he said.

IBM refused to bring the system up unless Royal either paid it the \$48,000 it claimed in back rent or took out the 2701, he said. Perazzo tried all over the country to get another 2701, but needed it within the 120-day delivery schedule quoted, he said.

Later, an IBM attorney wrote saying IBM would bring the system up, but by then it was "too late," he said, adding Las Vegas is like a small town and word was all around that Royal's system wasn't operating.

Perazzo also has his views on the \$48,000 IBM is claiming. Royal offered to pay what it thought it owed, about \$12,000 or \$14,000, but IBM would not accept that, he said.

To begin with, the initial 360/40 installed by IBM took 17 days to bring up, which Perazzo said should have taken three or four days. The system then would "constantly go down," he

said.

In addition, Royal had ordered it with a floating-point feature, which wasn't on the delivered system. All Royal's software had been written in advance for a system with a floating point, and "therefore we could not begin to test our software," he said.

Rumors About Mafia

The rumors about Royal's connection with the Mafia were circulating even before Royal opened its doors, he said. Central Telephone Co., which was going to provide Royal with time to test programs on its IBM machine in accordance with an arrangement with IBM, refused to let Royal do so, he said.

Perazzo is still in Las Vegas and involved in a DP-related business after "shaking the monkey off [his] back" by filing suit against IBM.

Among the depositions, the *Journal* said, is one from an IBM staffer who acknowledged he had heard IBMs talk disparagingly about Royal Data, but only within the IBM office.

The service envisioned by Royal Data would have con- (Continued on Page 36)

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Cost, Flexibility Cited as Advantages of Single Bus

(Continued from Page 35)

he said.

"If you took all that memory and disk and drum memory and dumped it on the bus, the CPU wouldn't have any time to do anything on the Unibus," he explained.

Small computers are very much at home with a single-bus structure because by design they don't have the power to overcome a single bus, he added.

"When you get to the big systems that are really passing a lot of data back and forth and have many different electronic boxes communicating with them, you can only stuff so much water through a hose," Orr observed.

NCR Sees No Problem

However, Tom Carroll, manager for Criterion marketing product programs at NCR Corp., said he doesn't anticipate a problem from heavy memory traffic

on the bus because of the way the models are designed.

The memory in the 85/70 model, which is two-way interleaved, can range from 256K to 1M byte. Instead of plugging the memory modules directly into the bus, NCR chose to free up more space for additional I/O devices and interfaces by plugging only the memory interface directly into the bus, he said.

The memory modules themselves plug into a separate rack, he added.

By contrast, in the smaller

85/50, the memory modules themselves go into the bus, he said.

Jim Strelchun, product manager of Harris' Slash 6, also doesn't see any throughput problems stemming from the single-bus design. The degree of conflict is a function of the sort of logic employed, he said.

The Slash 6 has "very efficient logic that controls the bus," he observed, adding the system has a 48-bit data bus where two words are transferred in parallel, contributing to a high through-

put rate.

The memory consists of 16K-word modules with interfaces to the bus that have their own timing and control logic to access the bus.

In addition, each memory module has in effect a mini cache. A 48-bit buffer expedites memory access, he said, noting the maximum memory for the Slash 6 is 768K bytes.

Strelchun said he classifies the Slash 6 in the performance area of the IBM 370/145 and the Decsystem 20.

Simon said he feels the HIS Megabus will be able to handle higher performance levels than those announced.

The Megabus has 24 address bits, so it allows 8M bytes of memory to be plugged in, he said. The 6/34 and 6/36 CPUs have a maximum addressability of 64K words.

"We laid the bus out so if you want to go to the next version, which addresses more memory, you plug in a different CPU board and more memory, and it's all there," he said.

Suit Alleges IBM Put Service Firm Out of Business

(Continued from Page 35)

nected terminals in the casinos to its CPU, which would keep track of credit balances of gambling customers.

A casino that knowingly deals with organized crime can lose its license. But even without the rumors of connection with the Mafia, Royal Data might have had a hard time establishing business, according to some of the depositions as reported in the *Journal*.

One casino executive reportedly called Royal Data's prices out of line, while another indicated he had trouble determining the financial soundness of the firm.

In addition, the Perazzos were from out of town and asking for sensitive information—the names of customers who gamble on credit, according to another deposition, the *Journal* said.

The legal firm representing Royal Data is Loeb & Loeb in Los Angeles, which also represents Keronix, Inc. in its suit against Data General in which it has charged the larger mini maker with conspiracy to commit arson and to wiretap Keronix's phones [CW, Jan. 22, 1975].

International T/S Net Proceeding Well: CSC

LONDON — Computer Sciences Corp.'s (CSC) multinational service company is coming along very well, according to John Luke, president of Infonet, CSC's time-sharing network.

Infonet is currently operating in Europe via a remote concentrator in Brussels and land links to London, Paris and Frankfurt.

The centers are linked to Univac 1108s in Chicago.

A parallel operation is under way in Spain. Under a licensing agreement, CSC is leasing its Infonet software to Entel Ibramatica, a subsidiary of the Spanish Telephone Co.

The service is currently offered on a CSC computer via satellite.

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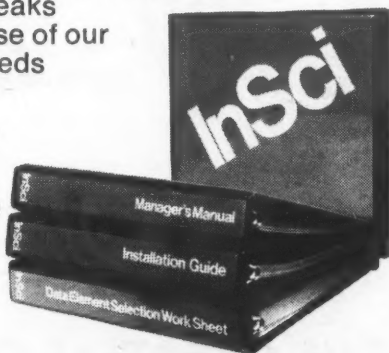
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3-5 years experience in the development of software for microprocessor controlled terminals. Must be familiar with telecommunications line protocols and Assembler Language. Project leadership desirable.

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Two of our top clients have an urgent need for several COBOL Programmers and Analysts. They are leading manufacturing firms located in suburban New England. Both offer tremendous opportunities for programmers with one or more years experience and both presently have 370/168's with nationwide T/P networks. In addition to excellent salaries, they offer complete benefit packages and outstanding growth potential. Write or call: Joseph Austin, Data Processing Account Mgr.

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Company specializing in automated health care systems is looking for experienced Prog/Analysts in Financial Systems, such as: Accounts Receivable, Accounts Payable, Inventory, General Ledger, and also Clinical Systems, such as: Clinical Laboratory, On-Line Order Entry, Pharmacy, Medical Records, Medical Audits. Also, for experienced health care personnel willing to enter the area of data processing.

For its offices in Wash., D.C., Louisville & Lexington, Ky., Little Rock, Ark., & Orlando, Fla. If interested, call or submit resume to:
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Aggressive, innovative problem solver to participate in developing and installing life insurance systems.

A progressive leader in the life insurance industry has opportunities available for several individuals with 3 or more years experience in Data Processing. If you are presently working for a life insurance company or consulting firm and possess current programming skills in IBM ALC or COBOL under DOS or OS, consider this opportunity to join an outstanding team. Salaries directly reflect responsibility of starting assignment.

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Personnel Consultant

DATA PROCESSING

Development of large scale manufacturing and commercial data base systems necessitates expansion of our information systems staff. Our present and projected growth offers opportunities for career enrichment and advancement. Openings exist for professionals seeking career opportunities as:

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Experience in design of on-line integrated data base systems. Requires B.S. in Computer Science or Business and 4 years as a Programmer/Analyst with 1 to 2 years in an IMS environment.

PROGRAMMER/ANALYST

2 to 3 years as a Programmer/Analyst with working knowledge of programming business and manufacturing applications using ANS-COBOL in an IMS environment. B.S. in Math or Business or comparable technical experience required.

SYSTEMS ANALYST

1 to 2 years as Systems Analyst or Programmer/Analyst in manufacturing applications. B.S. in Computer Science or equivalent experience.

A leader in our industry, we offer competitive base salaries and fringe benefits. Submit resumes including salary requirements to: D.S. Perkins.



Mobay Chemical Corporation
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PROGRAMMERS/ANALYSTS

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(P.S. Be sure to use home address and indicate position title.)
Or call your nearest Source EDP Office:

source edp

East: Boston (617/237-3120), New York-New Jersey (201/687-8700), Philadelphia (215/665-1717), Washington, D.C. (703/790-5610).

Midwest: Chicago (312) 782-0857, Cleveland (216/771-2070), Detroit (313/352-6520), Kansas City (816/474-3393), Minneapolis (612/544-3600), St. Louis (314/862-3800).

South & Southwest: Atlanta (404/634-5127), Dallas (214/638-4080), Fort Worth (817/338-9300), Houston (713/626-8705), New Orleans (504/523-2576).

West Coast: Los Angeles (213/386-5500), Irvine, CA. (714/833-1730), Palo Alto (415/328-7155), San Francisco (415/434-2410).

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Data Entry is forecasted to be the fastest growing segment of the computer industry over the next 10 years. The recent merger of CMC and Pertec has established Pertec as a Data Entry industry leader. These factors create an excellent opportunity for a sales oriented individual who is looking for a career position with a solid, rapidly growing company. We are looking for an individual to assume responsibility for developing and implementing support programs to increase the effectiveness of the world-wide distributor sales and support organizations. This manager will supervise sales support and promotional specialists and work closely with regional sales and marketing services managements. The successful individual should have 5-7 years in marketing support with 3 years directly related sales or sales support experience with programmable Data Entry systems. Send resume with salary history to:

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PERTEC
Business System Division

Applied Software Systems Expansion

Office Automation Networks

Digital is developing state-of-the-art office automation networks employing thousands of independent processors. Circuit switched telecommunications facilities will use DDCMP message protocols. System interfaces will be fully engineered for the office environment. Opportunities are available for innovative software engineers at most levels of experience to augment our efforts on current programs as well as planned expansion programs. The following positions present a unique opportunity to apply your software engineering expertise in one of the fastest growing areas in the computer industry.

Senior Project Leader

You will be responsible for leading 4-5 software engineers in the development of totally distributive office automation networks. Ideally you will have a BS or MS in Computer Science, 5-6 years experience with at least 2 years as a project leader. You should be a very good architectural thinker with a broad knowledge of the systems business particularly an understanding of end-user problems. Specific technical background should include a strong capability in operating systems software, communications, drivers, IO, editors, distributed data, assembly language and RSX-11M.

Software Engineers

Opportunities are available for innovative individuals with 3-5 years experience to make major contributions to our office automation programs. You will be developing applied systems software with particular emphasis on end-user considerations. These positions require a BS or MS in Computer Science with a solid knowledge of PDP-11 software, assembly language and communication networks.

Forward resume outlining salary requirements to Justin Kelleher, Digital Equipment Corporation, Dept. B719, 162 Main St., Maynard, Mass. 01754.

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PROGRAMMERS/ ANALYSTS

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Two years NCR NEAT/III or NCR COBOL experience desired. Experience with CIF, CIRF and/or commercial bank applications preferred.

We offer an excellent starting salary plus an outstanding fringe benefit program. Send resume to:

Personnel Division

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DIRECTOR OF COMPUTER CENTER — Direct total operation of College Computer Center to include administrative and academic interface functions. Must be familiar with BAL, COBOL, and BASIC Languages and experienced with IBM 360 and PDP 11 equipment or its equivalent. BA required, MA preferred. At least five years' experience in supervisory DP position. Twelve month contract, salary negotiable. Deadline for applications July 23, 1976. Commence work in August. Apply to Dr. W.A. Connor, Dean, Northampton County Area Community College, 3835 Green Pond Rd., Bethlehem, PA 18017. An Equal Opportunity/Affirmative Action Employer.

INSURANCE SYSTEMS

When does a job change become a career move?

If you have casualty or life insurance systems experience, one of your most outstanding career options is the field of management consulting.

Booz, Allen & Hamilton, Inc. is a leading general management consulting firm. We can present unique career opportunities to computer specialists who have designed and implemented major applications systems.

These positions involve travel and offer an attractive compensation and benefit package. You may respond with resume or personal note and your home phone number to: Mr. Allen Wurzbach, Booz, Allen & Hamilton, Inc., Dept. CW-4, 245 Park Ave., New York, N.Y. 10017. We are an equal opportunity employer, M/F.

Booz Allen & Hamilton Inc.

ANALYST/PROGRAMMER

A world-wide leader in the offshore engineering and construction industry has positions available in its New Orleans office to design and program commercial business applications.

Analyst's responsibilities include systems design, user interface, and development planning and implementation of OS/VS systems. 5 years COBOL programming with 2 years systems design work experience necessary.

Programmer's primary responsibility is translation of business design into technical design and coding. 3 years strong COBOL programming with limited systems design work necessary. Degree in accounting, business or related fields required.

These positions offer an excellent salary and fringe benefits package.

Please submit resume including salary history in confidence to Mrs. Kaylo

J. RAY McDERMOTT & CO., INC.

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Software Professionals

Schering-Plough Corporation offers positions of growth and professional challenge to Software Systems Programmers. We are presently adding to our technical staff to support our expanding Corporate Data Center facilities using a 370/168 with MVS, IMS/VS, CICS and TSO.

SENIOR SYSTEMS PROGRAMMER

The person we seek should have 4-6 years EDP experience with a minimum of 3 years in installing and maintaining IBM's operating systems (OS or VS) or equivalent experience supporting an IMS DB/DC environment.

SYSTEMS PROGRAMMER

You should have 1-3 years experience with IBM software including good knowledge in assembly language and COBOL. Experience with teleprocessing would be a plus.

We are a Fortune 500, NYSE-listed leader in Proprietary drugs, OTC drugs, cosmetics and toiletries located in Memphis, Tennessee; one of the fastest growing cities in the nation — known as the financial center of the Mid-South; and offering diversified cultural and recreational activities in an attractive southern climate.

Please forward a detailed resume including salary history and requirements in confidence to:

Ken G. Stevens, Management Recruitment Representative.

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SYSTEMS PROGRAMMERS

Data Processing Opportunities with National Distillers & Chemical Corporation in Louisville.

National Distillers & Chemical Corporation is relocating our Data Processing Center to Louisville.

Because of this relocation, we have several challenging and interesting positions immediately available for data processing specialists who will be working with IBM 370/158 under OS/VS1.

SYSTEMS PROGRAMMER/LEAD SYSTEMS PROGRAMMERS

The successful candidate has at least two years experience as a systems programmer under OS/VS1 with additional experience in SYSGEN, SMP maintenance, technical support, and RES. CICS, TCAM, or TSO experience is a definite plus.

STANDARDS and PROCEDURES SPECIALIST

The successful candidate must have two years experience as a systems programmer and also must have experience in establishing, evaluating, and implementing systems standards and security procedures. Supervisory background is a plus.

LOCAL LOUISVILLE INTERVIEWS WILL BE ARRANGED.

Please send your resume to Personnel Manager, National Distillers & Chemical Corporation, 99 Park Avenue, New York, New York 10016. We are an equal opportunity employer, m/f.

ND CC National Distillers & Chemical Corporation

99 Park Avenue, New York, New York 10016

PROGRAMMERS/ANALYSTS

Boeing Computer Services Richland, Inc., has immediate openings for the following positions:

• System Analysts

Position requires BS in Computer Science or related field. Experience required in assembly language programming (or suitable course work). Experience desired with operating systems software, large-scale or mini-computer and telecommunications.

• Business Programmers

Duties will be to analyze, design, code and document complex applications to large-scale electronic computers and associated equipment for business systems. Other duties will be to update the Data Collection System Feasibility Study, conduct requirements analysis, develop preliminary and detailed design of those business systems that will take advantage of the data collection system. Degree desirable, but not mandatory. Two years experience with data collection systems and the implementation of business systems using the data collection hardware and a knowledge of COBOL are definite requirements.

Boeing Computer Services Richland, Inc., provides vital support services to the Energy Research and Development Administration's Hanford Complex.

The Tri-Cities, Richland, Pasco and Kennewick, are well-known for a temperate climate, numerous recreational facilities, superb educational systems and excellent living conditions.

Submit your résumé to, or call, Wally Webster, (509) 942-7784, Boeing Computer Services Richland, Inc., Room 149-B6, P.O. Box 300-A4, Richland, WA 99352.

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SYSTEMS ANALYST

The City of Green Bay is seeking a highly qualified individual with at least 5 years experience in Data Processing. The Systems Analyst will play a key role in design and implementation within a government environment. Starting salary — \$15,200, increasing to \$16,400 after six-months probationary period.

Send resume to:
City of Green Bay
Comptroller's Office
City Hall - Room 105
Green Bay, WI 54301
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Exceptional opportunity for ambitious individual who is looking for growth with a progressive financial data processing organization. The successful candidate will possess a minimum of two years programming experience. Preference will be given to candidates with:

- NCR-CIF Experience
- NCR-Century Neat/3 Financial Experience

Please send letter of application or resume including salary history and requirements in confidence to:

Roger P. Levesque
Sr. Vice Pres. & Controller
Southeastern Bank
& Trust Company
P.O. Box E914
New Bedford, Mass. 02742

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PROGRAMMER ANALYST

Hvy. mfg systems exp needed for Div. of lge Distrib co. Bkgd must incl min of 2 yrs exp prog in COBOL. Applications are financial, inv control & order entry. IBM 360 shop. \$14,000 (fee paid). Contact P. Siegal (in confidence).

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TECHNICAL SYSTEMS

When does a job change become a career move?

If you have technical support experience with either hardware vendors or users, one of your most outstanding career options is the field of management consulting.

Booz, Allen & Hamilton Inc. is a leading general management consulting firm. We can present unique career opportunities to computer specialists with a background in hardware/software planning, operating systems and database.

Three positions involve travel and offer and attractive compensation and benefit package. You may respond by resume or personal note with your home phone number to: Mr. Allen Wurzbach, Booz, Allen & Hamilton Inc., Dept. CW-5; 245 Park Avenue, New York, N.Y. 10017. We are an equal opportunity employer, M/F.

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Grumman Data Systems has an immediate opening for an Engineer-In-Charge of Computer Maintenance. Position will include the overall maintenance supervision of Grumman's Automated Telemetry facility located in Calverton, Long Island, New York; supporting Front End Acquisition Hardware, Mini-computers and Preprocessing Computers as well as the site's Central Computer.

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Project Supervisor

\$24,500-planning, directing, controlling large complex systems projects.

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\$31,000-Minimum 4 years insurance world. Duties include design and analyses on large complex systems projects as well as research and development in specialized fields of manual systems activities (Human factors studies, training techniques, etc.).

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Salary open-2 years experience and train internally for 1st level consulting position.

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Manager of Standards & Education

Salary open-3 to 5 years in lower level mgmt., and now ready to move up.

Standards Technician

\$25,000-2 to 5 years exp. with 1 year as project coordinator. Ability to function in area of rapid change.

Data Analyst

\$30,000-3 to 5 years IMS consulting or systems design provide top level internal consulting function.

Jr. Data Analyst

\$20,000-2 to 5 years programming IMS desired but not required. Train as internal consultant.

Project Development

Consultant (Internal)

\$25,000-Provide technical advice and direction in the design and development and implementation of complex on-line Data Base oriented systems.

6 Senior Programmers

\$19,500-Prefer insurance exper. 2 years or more in programming assembler language & COBOL TP, on-line IMS DB-DC environment.

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Systems Research-Support

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Systems Analyst

IMMEDIATE OPENING: Systems Analyst/Programmer for NCR 399. Need competent individual for computer system specifications, record layouts and development of procedures to process information. Must have ability as a self-starter requiring minimum supervision. Also analytical ability to modify systems design for efficient and effective systems applications. Individual will confer with organizational personnel to determine systems/programming problems. Qualifications: three to five years' experience in electronic data processing, college graduate with major in Computer Science or related field, or equivalent experience. Salary open, based on experience.

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To be responsible for total systems design for Point-of-Sale terminal. Will conduct evaluations of system requirements and development of the technical approach. This lead engineer should bring 6-10 years experience in application of mini/microcomputers to real-time, interrupt drivers processing requirements. Must be capable of performing hardware/software tradeoff, evaluations as well as analyzing hardware and software designs and resolving conflicts.

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SYSTEMS ENGINEER

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A degree and up to 5-8 years experience in real-time computer systems. Knowledge of high level languages (FORTRAN, COBOL) etc., and of telecommunications disciplines - VTAM, BTAM, bisync, etc. Operating systems knowledge and experience desirable.

If you are seeking a sound next step to your digital computer systems experience, we invite you to contact:

Robert W. Donovan
Terminal Systems Division - Cambridge
NCR Corporation
Cambridge, Ohio 43725
Phone: (614) 439-0398

NCR

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University Computing Center Positions

The University seeks applicants for positions created by expansion and reorganization of its Center:

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Direct a staff of 15 to develop computer based administrative systems; participate in long range planning, equipment selection, budgeting, etc. for the entire Center.

Qualifications: extensive University or equivalent data processing experience and leadership background; knowledge of data base management systems, preferably for UNIVAC 1110; advanced degree desired. Salary in the twenties.

Programmer/Analyst - Administrative Systems Development

Perform analyses of administrative office requirements and design, implement and document computer-based systems. Experience with higher level languages on medium to large scale machines, and administrative applications. Salary range \$12,500 to \$18,000.

Programmer/Analyst - Data Base Management Systems

Under the Assistant Director for Data Base Management, this person will be responsible for DMS 1100 system generation and use of utilities and for Data Base schemas, recovery procedures, security techniques, etc. Requires experience with D B systems (DMS 1110 preferred), on-line university administrative systems. Salary range \$12,500 to \$18,000.

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Administrative aide, collects, prepares, analyzes and presents operational and performance data; oversees billing, accounting and expenditure processes; provides coordination between the director and suppliers, customers and staff.

Qualifications: appropriate degree, two years experience in technical role in computing, basic knowledge of accounting, budgeting methods; skilled in oral and written communication. Salary range \$12,500 to \$18,000.

Send resumes and supporting documents to:

Director, Computing Center
State University of New York at Albany
1400 Washington Ave.
Albany, New York 12222

FIELD ENGINEERS

ITEL's growing Field Engineering Division is seeking qualified Field Engineers with advanced training and experience on disk and tape drives, memory and CPUs in the following cities:

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Qualified applicants should send a resume in confidence to: ITEL Corporation, Field Engineering Division, Personnel Department, 3460 West Bayshore Road, Palo Alto, CA 94304.

ITEL
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INFORMATION SYSTEMS OPPORTUNITIES

Air Products and Chemicals, Inc., a diversified industrial gas and chemical technology company, with current annual sales on the order of \$700 million, has immediate opportunities for Systems Analysts in the Management Information Department at the Corporate Headquarters in Allentown. These positions include responsibility for the design, development and implementation of information systems for various business areas. We require a BS degree with an MS or MBA desirable. Qualified applicants should have 1 to 3 years systems or programming experience, preferably on large scale computer systems.

Interested individuals are requested to call collect Monday and Tuesday, July 19 and 20, 8:00 a.m. to 5:00 p.m. (215) 398-6966.

Local interviews may be arranged.
Interested individuals, please forward resume or a brief letter outlining educational background, career progress and present salary to:
Manager, College Relations

Air Products

P.O. Box 538, Allentown, PA 18105

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SYSTEMS ANALYST

Major Evansville, Ind. based manufacturer has an opportunity for an experienced systems professional with the following background: • Design and implementation of manual and computerized systems and procedures. • Effective interaction with top management. • Development of production and inventory control systems • Knowledge of mini to medium size computer systems. Minimum of 5 years systems experience in a manufacturing environment is desirable. College degree is preferred. Salary is \$20-24,000 + benefits. Send resume and salary history to CW Box 4710, 797 Washington St., Newton, Mass. 02160. An equal opportunity employer.

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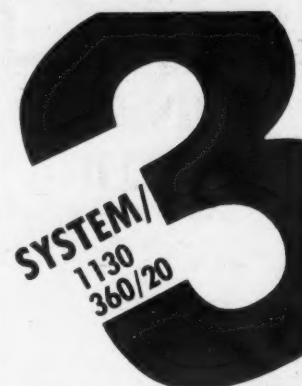
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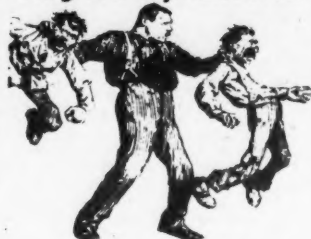
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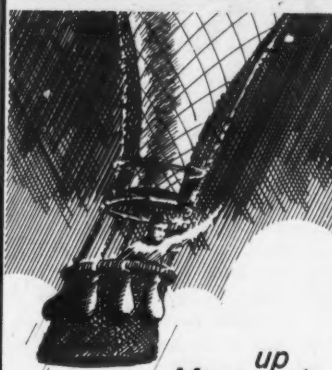


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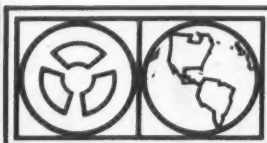
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NCSS Rises

NORWALK, Conn. — National CSS, Inc.'s (NCSS) first-quarter earnings rose to \$754,000 or 66 cents a share compared with \$511,000 or 46 cents a share in the same period last year.

The firm recorded investment tax credits of \$140,000 in the recent period and \$25,000 in the 1975 quarter. Revenues reached \$10.2 million compared with \$8.6 million.

AJ Earnings, Revenues Up 30% in Year

SUNNYVALE, Calif. — Anderson Jacobson, Inc.'s (AJ) revenues and earnings advanced 30% in the year ended March 31.

The year marked the fifth consecutive year in which the firm achieved substantial increases in revenues and earnings, according to Raymond E. Jacobson, president and chairman.

"Over this period the company has achieved an average compound growth in both net income and revenue of about 50% per year.

"This is a record of which we

can justifiably be proud as it must place our company among the top tier of growth companies in the world," he said.

During 1976, revenues reached \$17.3 million compared with \$13.4 million in 1975 while earnings totaled \$864,431 or 35 cents a share compared with

\$663,906 or 27 cents a share last year.

International operations progressed "very satisfactorily" during the year and are expected to provide an increasingly significant fraction of consolidated revenues as time goes on, Jacobson said.

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Greyhound Net Gains in Quarter

PHOENIX — Greyhound Computer Corp. reported earnings of \$356,000 or 8 cents a share for the first quarter ended March 31, up from \$49,000 or 1 cent a share in the same period last year.

Revenues were \$14.5 million, down from \$15.8 million in the year-ago quarter. This decline resulted both from fewer computer leasing rentals and from reduced data services activities in the U.S. and the UK, according to Olie E. Swanky, president.

The increase in earnings was primarily attributable to lower short-term interest rates, relatively stable computer leasing activities and reduction of data services losses brought about by the disposition of four U.S. data centers in late 1975 and early 1976, he said.

Carmen Miranda's Brazil is now a thriving EDP market, and home of *Computerworld's* newest publication—*DataNews*.

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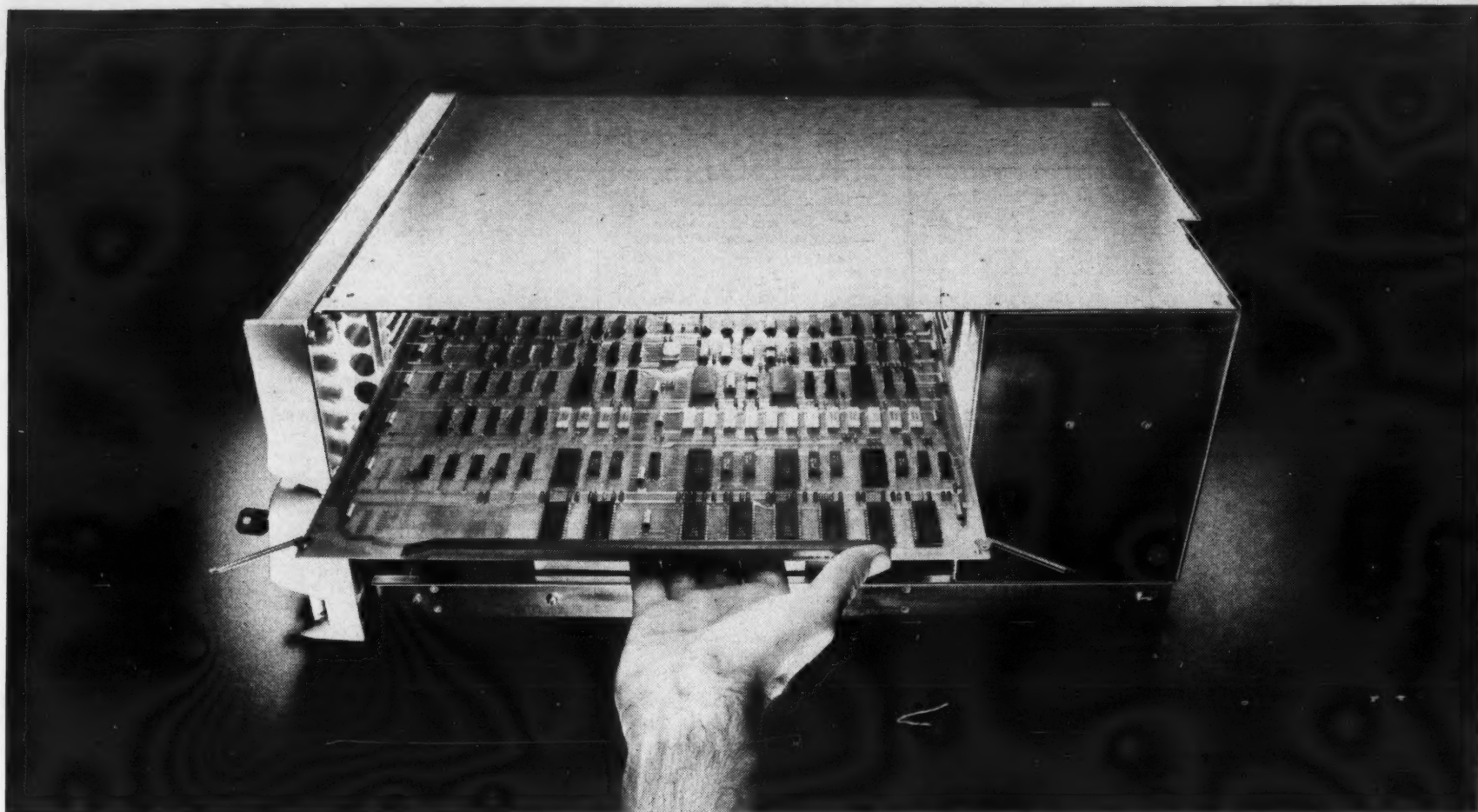


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